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LIBRARY**







The Green Thumb

JANUARY, 1949



GREEN THUMBS

WILLIAM H. LUCKING, JR.

"Big Bill" Lucking has one of the largest, and possibly greenest thumb in the state. Plants like Bill and he likes plants. He has been working with plants most of his life. In his younger days he worked with vegetables, and later was in charge of the Roberts Nurseries, which were at one time the largest in the state. A few years ago he got tired of everyone expecting him to do three men's work and "retired" to care for his own ten acres of peonies and glads. He has now sold that garden, but we surmise that he will be in some way connected with the growing of plants as long as he lives. While with the Roberts Nurseries he did extensive propagating of trees, shrubs and perennials. All these things grew at his touch. He was also in demand for creating naturalistic rock gardens and landscape plantings. A few years ago a national authority rated Bill as the "best nurseryman in Colorado." We would like to see many more "Bills" developed in the state.

THE HERBARIUM

For the last two years we have been working to build up a rather complete collection of the wild and cultivated plants found in the state. There have been several expeditions each year on which several hundred plants have been collected. Mrs. Kalmbach, as chairman of the committee, has spent one day each week during this time

classifying, labelling and mounting these specimens. A few people have occasionally come in to help her, for which we have been very thankful. There should be several others who would enjoy working with Mrs. Kalmbach a few hours once a week, so that we might get these specimens mounted and filed for use. Call us about it.

MEMBERSHIP

ROSAMUND U. PERRY
Membership Chairman

Our membership drive has brought us several hundred new members, whom we welcome, and who, we hope, will enjoy the pleasures and benefits afforded by membership.

Our treasurer, Mr. Shoemaker, reports that a considerable number of 1948 members have not as yet paid their dues for 1949. Our strength depends upon a large and interested membership. We hope that those who have not already done so will send in their dues as soon as possible so that they may continue to receive the "Green Thumb" without interruption.

JANUARY

MAUD MCCORMICK

What blushing beets and bloom I
grow
While outdoors all is ice and snow!
My garden plan is quite complete,
The weeds are gone, the walks are
neat,
And every magic plant excels
The marvels that the seedsman sells.
In color, size and germination,
Mine beat his claims and illustration.

If only all my plants would caper
As gay in earth as on this paper!

*Picture on front cover by Kwong Yeu
Ting, Landscape Architect of Manhattan,
Kansas.*

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JANUARY SCHEDULE

Friday, Jan. 7, Horticulture House,
7:45 P. M.

Fred R. Johnson will explain the state forestry recommendations as given in the Hastings Report. Everette Lee, state Forester, will talk of the Christmas tree situation and give recommendations.

Sunday, Jan. 9.

Trip over the Beaver Brook Trail from Windy Saddle on Lookout Mountain to the Silver Cedar Botanical Reserve below Stapleton Drive. Meet at Horticulture House 9 A. M. Wear warm winter clothes and bring a pocket lunch. Wear good shoes if little snow and bring snowshoes if much snow. This is a very beautiful trail.

Friday, Jan. 14, Horticulture House,
10:30 A. M.

Mrs. Helen Fowler will talk about trimming shrubs.

Friday, Jan. 21, Horticulture House,
7:45 P. M.

Robert E. More will tell about his experiments with all kinds of evergreens in Colorado.

Friday, Jan. 28, Horticulture House,
10:30 A. M.

Mrs. Persis Owen will talk about "Getting the Garden Ready for Spring."

The Green Thumb

A Bulletin of the

COLORADO FORESTRY AND HORTICULTURE
ASSOCIATION

Organized in 1884

GEORGE W. KELLY, Editor

MISS LORENE SMITH, Editorial & Adv. Asst.

MISS ALICE WOOD, Assistant Librarian

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1355 Bannock St., Denver 4, Colorado

Phone TAbor 3410

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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Horticulture Association

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*Engelmann Spruce at Trapper's Lake
From "Colorado Evergreens."*



TIMBERLINE TREES

By ROBERT E. MORE

COLORADO has fifty-two 14,000-foot peaks—more than all the other states put together. From the 11,000-foot level to about 11,500 is found “Timberline,” one of the most fascinating botanical areas that exists. There eternal winds buffet every living thing. Snow comes early and stays late; in protected hollows it never melts. The ever present rock ledges have almost no soil on them, and practically no humus in what little soil there is. The trees that can find sustenance in these places, and can successfully battle the elements, are tough. They have to be.

The trees at timberline are extremely resourceful. To conserve moisture they reduce the size of their needles as much as possible, so as to

lessen transpiration. Needles on these evergreens are so short that familiar trees are sometimes difficult of identification. The prevailing wind being from the west, frequently all foliage and bark on that side of a tree are completely decorticated. Sometimes the wind permanently bends the trunk of a tree along its course, as dramatically shown in the illustrations of “The Praying Mantis Tree” on Mount Evans.

Some of the trees never expose their crowns to the blasts, but hug the ground or even nestle in the lee of more vigorously inclined neighbors.

A climb of but a few hours can be the botanical equivalent of a journey of thousands of miles. Rutherford Platt has pointed out (*Our Flowering*



*The "Praying Mantis Tree", First Stage
Photo by U. S. Forest Service*

World) that, "As you climb, you are traveling north at the rate of 600 miles per hour!"

Let us start with the Lodgepoles at 8000 feet. They predominate up to about 9550 feet. Associated with them, in the upper reaches, have been occasional Alpine Firs, with grayish-white trunks and narrow, spire-like crowns. With the Alpine Fir came the Engelmann Spruce, forming dense forests at 10,500 feet. The Engelmann continues to Timberline, frequently being the last tree to survive. On sunny slopes the Bristlecone stands squat and firm. Along the rocky ridges, the Limber Pine wages its battle with the elements all the way to

Timberline; often, in maturity, slowly losing all foliage till the stark, bare trunks, whitened by the sun and rains, form their own monuments of former greatness. Many times the trunks of these trees are twisted—though why, no one has convincingly explained. These "Elfinwood" dance and form grotesque monsters, ancient and modern.

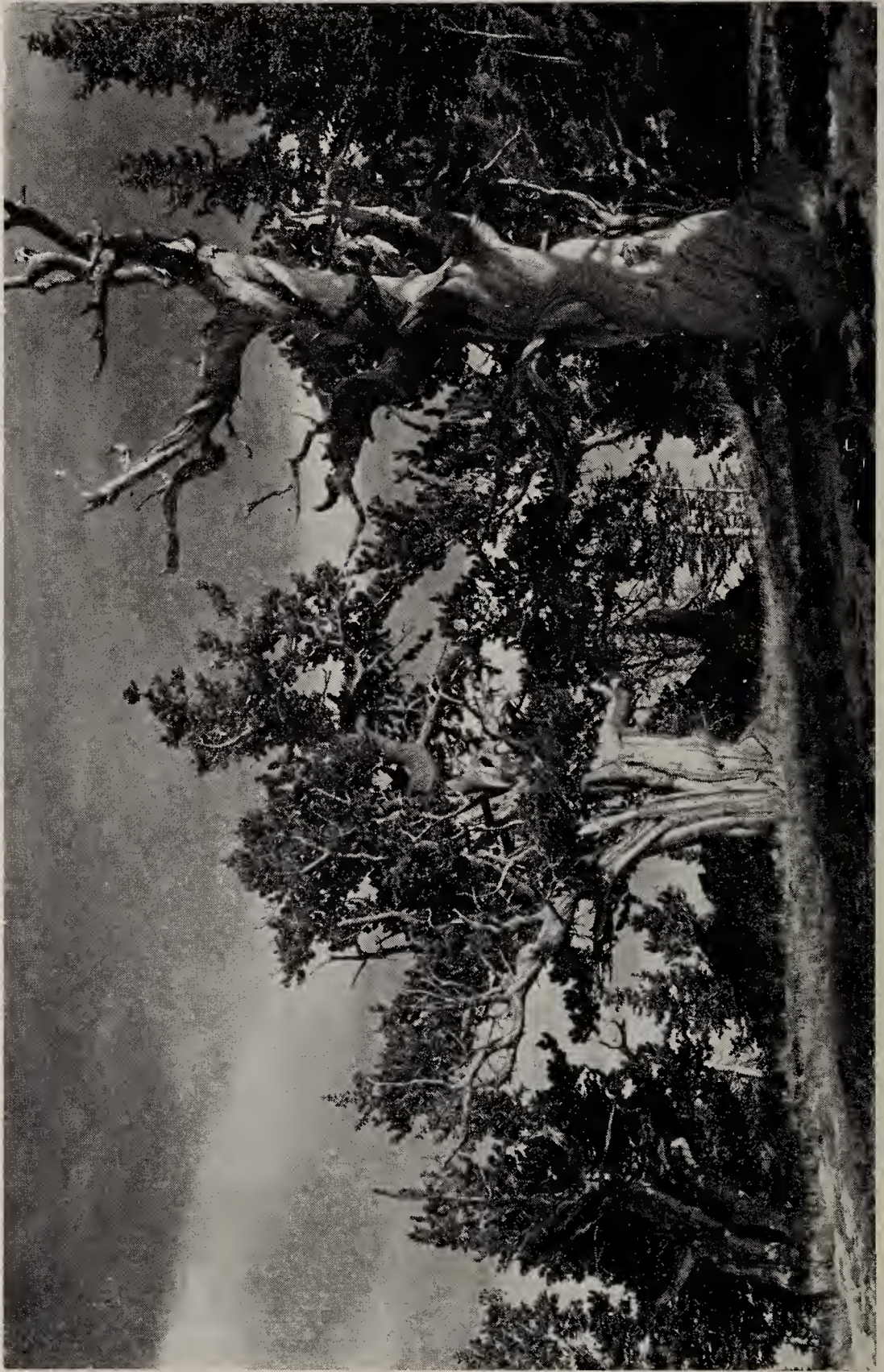
The tree shown on pages 6 and 7 is, perhaps, the most photographed tree in Colorado. The second picture taken, probably, 25 years after the first, shows it stripped of many of the branches present in the earlier picture. On its trunk clings a perfect specimen



The "Praying Mantis Tree", Second Stage, From "Colorado Evergreens".

of a praying-mantis, and the tree has sometimes been called the "Praying Mantis Tree."

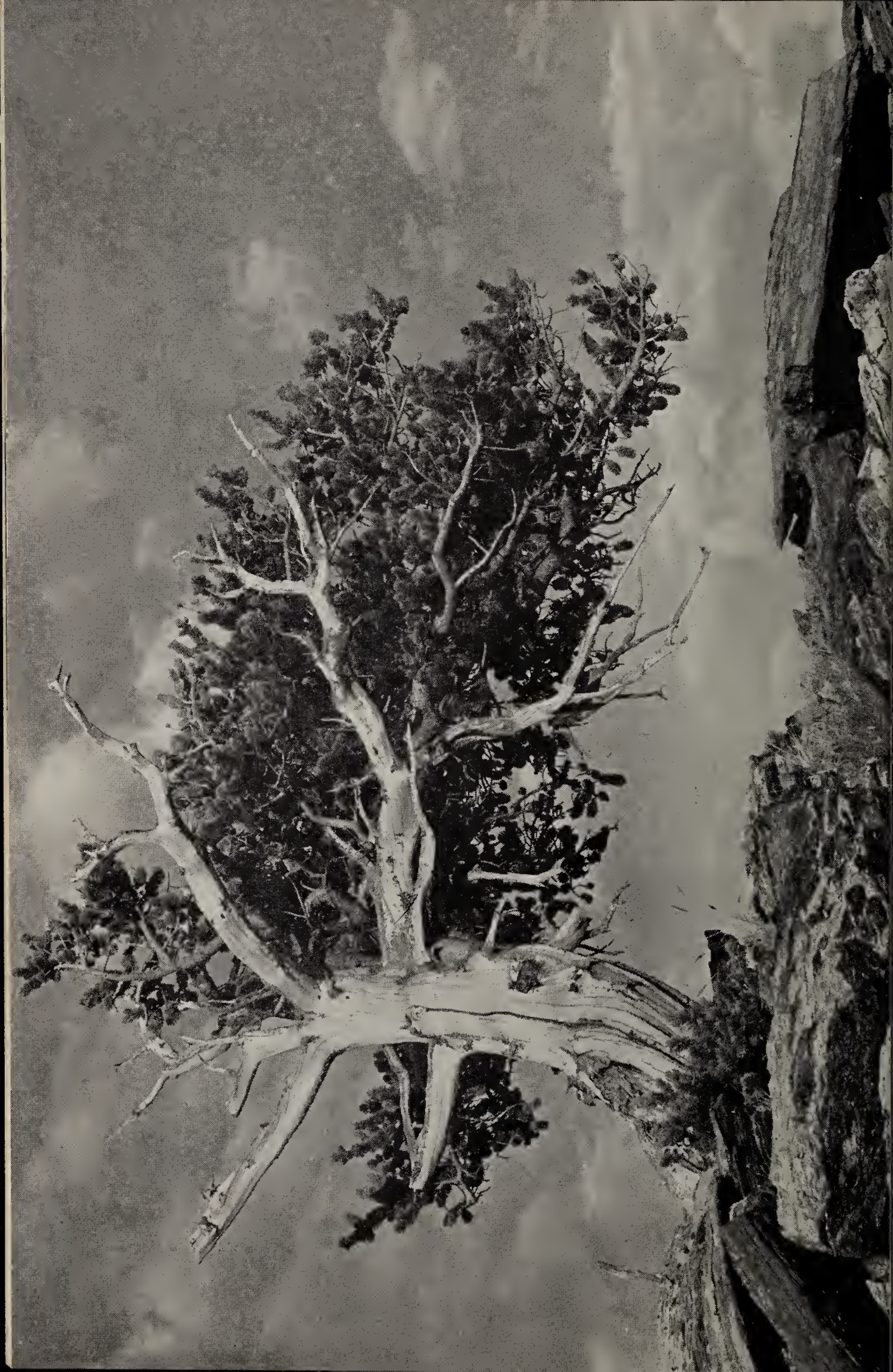
May another photographer continue its photographic history twenty-five years from now!



The Twisted Trunks form Monuments of Former Greatness—Photo by O. Roach



*The Last Stand—Prostrate Engelmann Spruce at Medicine Bow.
Photo by U. S. Forest Service*





Dancing "Elfinwood"—Photo by Edward Milligan



Bristlecone Pine Sheltering Engelmann Spruce.—From "Colorado Evergreens."



Engelmann Spruce—From "Colorado Evergreens"



*On Sunny Slopes the Bristlecone Stands Firm.
Photo by H. L. Standley*



Prehistoric Mounster on Mt. Yale.—Photo by Harold McBride.

Center Spread—Sand and Pebbles Decorticate the Trees on the Windward Side →
Photo by O. Roach







General view looking down the slope over tops of Douglas fir Christmas tree stands. The lines indicate the northeast corner of the farm. The brush type on the lower slopes is being planted with nursery-grown seedlings.

CHRISTMAS TREE FARMING

E. S. KEITHLEY

MY EXPERIMENTAL Christmas tree farm is located six miles from Colorado Springs over a good road. It consists of 200 acres of steep, rough natural forest. The elevation ranges from 6750 to 7700 feet. The general exposure is northeast, cross cut with several small gulches in a general easterly direction, which gives several short southerly and northerly exposures. Some 100 acres support natural stands of uneven aged Douglas fir, ponderosa pine and white fir. The pine predominates on southerly exposures and Douglas fir on the northerly exposures. The other 100 acres support short scrub oak and mountain mahogany, interspersed with kinnikinnick, grama grass and gravel slide openings. The soil is typical Pike's Peak coarse, brownish gravel, with a considerable percentage of fines and humus in the gulch bottoms.

Soil, elevation and moisture are not suited for growing saw timber.

Foothill land of this character is believed to be better suited for the production of natural evergreen materials for decorative purposes. More specifically this includes Christmas trees, boughs for ropes, wreaths, grave-blankets, kinnikinnick and cones, plus such incidental products as mining props, posts, corral poles, fence stays and fuel wood. Even the production of ornamental wildings may well be practised.

It is from the natural stands of Douglas fir that the present cut of trees and boughs is being obtained. Allowable cut on a sustained yield basis from these natural stands has been arbitrarily set for the present at not to exceed 300 trees plus boughs and other incidental products.

In the naturally full and overstocked

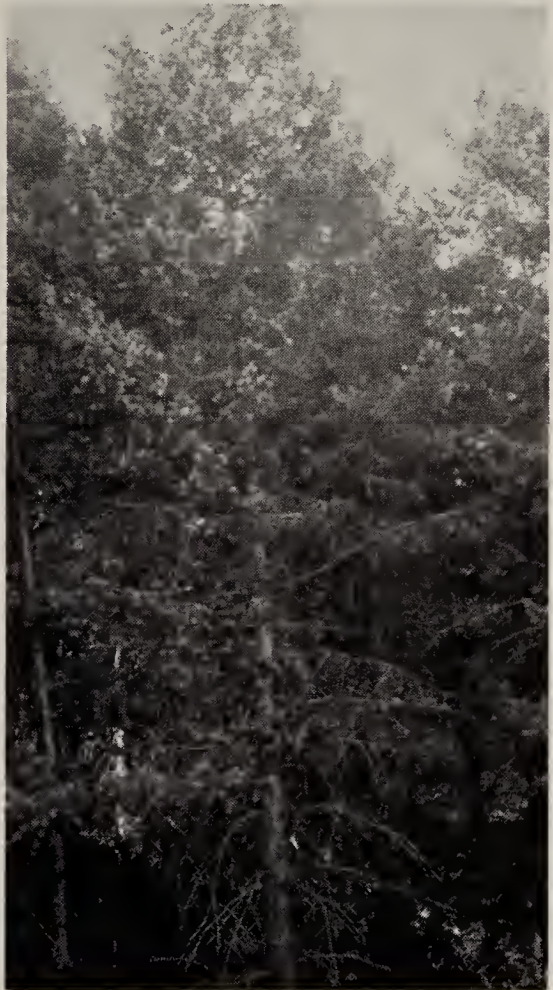
stands only first quality Christmas trees are cut. My basis for management being Christmas tree production, all trees not now of first quality are left for a later cutting when they develop into good quality trees. Those being cut for Christmas trees now have to be long-butted, using four to eight feet of the top for trees. The long butts, after being stripped for boughs, are used for props, posts, corral poles and fence stays. Other trees not now having good Christmas trees in the tops, but having good boughs are clean pruned close to the trunk, but not to exceed one half the total height of the tree. This stimulates top growth and the earlier development of a good Christmas tree in the top. Later such trees will be cut close to the ground, and completely utilized. Kinnikinnick is harvested by clipping out the stems with berries. This in brief covers the handling of natural stands for the present.

At home in Manitou Springs, and as a part of the farming operation, I plant a bed or two (each 4 feet by 12 feet) with Douglas fir seed collected from the older seed trees on the Christmas tree farm. Such beds are protected with rodent-proof protective screens and ordinary lath so as to provide 50 per cent shade. Seeds are sown in drills so as to produce about 150 seedlings per row four feet long. Rows are spaced four inches apart. Seed beds are cared for along with the home garden.

When two years old the seedlings are lifted and planted on the unstocked areas of the tree farm. For the past two years 4000 seedlings have been planted each spring (in April). The slit method of planting is used. Trees are spaced not closer than two feet apart. The brush cover promises to serve as a good nurse crop. This brush is certain to be a detriment later. Trees are not planted generally

in the grama grass sod which occurs in the numerous small openings in the short brush type. Under the above conditions the average number of trees planted per acre varies from 2000 to 3000. Survivals to date average about 75 per cent.

Natural reproduction is fairly abundant on the upper slopes of the Christmas tree farm within and adjacent to the older seed-bearing trees. The natural stands from which trees and boughs are now being harvested have become stagnated as saplings and poles (3 to 6 inches in diameter on the stump). The estimated maximum



Looking against a dense wall of Douglas fir trees 10 to 20 feet high. Such stands are being opened up through the removal of all the trees now having good Christmas trees in the tops. This stand runs about 2500 trees per acre. Seedlings are almost entirely absent in such stands.



General view looking up slope over tops of some 20 acres of Douglas fir stands, 75% of which are six inches and below on the stump

number of saplings and poles per acre is 2500. In addition there are clusters of natural seedlings 2 to 12 inches in height. The estimated maximum number of these is 2000 per acre.

Nearly all of the work incident to planting is done by myself. The harvesting of the crop each year is given supervision. All products are sold on the stump and cut by the operator. No previous marking is done. The operator is urged to cut only the best quality trees available. The stumps are cut close to the ground. Trees which seem most unlikely to develop into Christmas trees within a reasonable time are cut and limbed out for boughs. This sort of cutting opens up the stand gradually over a long period and aids in hastening the development of good crowns for Christmas trees on those left. It should be explained here that in these natural stands, trees 3 to 6 inches in diameter on the stump and 10 to 20 feet high, must be cut and long-butted to obtain good, usable trees 4 to 8 feet high. It must also be recognized that in starting from scratch with a forest in a natural,

wild condition, I am faced with a big conversion job, that is, the natural forest must be converted to a sort of man-made or managed forest.

It is much too early to draw any conclusions from this experiment. It is not amiss, however, to mention some of the things it is hoped to accomplish.

Of first importance is adequate fire protection. To attain this beyond my own effort is to look to the U. S. Forest Service and County fire organizations. Of next importance is to get the entire 200-acre tract fully and properly stocked with Douglas fir, using natural reseeding, artificial direct reseeding and planting practices. Ten years has been arbitrarily set for the accomplishing of this. Next is carrying on the annual harvesting of decorative material with a view of increasing the cut as more information is obtained and the trees become merchantable. Finally it is hoped to determine whether or not Christmas tree farming is practicable as a private undertaking on a long-range and sustained yield basis.



*Committee discussing plans on the site of the new planting.
Photo by Munch of Boulder Camera.*

HORTICULTURE IN BOULDER

THE community of Boulder is waking up to their special horticultural advantages and are doing something about it. At present this development is in three parts.

The Boulder Garden club, under the able leadership of Mrs. J. F. Sullivan, is arranging to locate, list and label the many unusual trees found in the city and surrounding country. This is a most worthwhile project, for Boulder has more unusual and "impossible" trees than any community in the state. They will really make an arboretum of the city.

Another project being promoted by

*Planting on west side of Broadway, across from entrance to proposed Arboretum.
Photo by Ed. Schueider.*





American Beech in Green Mountain Cemetery.

various interested individuals is the making of the "White Rocks" area into a botanical reserve. In this area are found many plants which are growing in only a few other places in the world. The archaeological value of this area is also great. It should be preserved for future generations.

The project being most actively carried out at present is the development of the old railroad right-of-way be-

hind the new athletic field. Maud Reed, biology teacher and human dynamo, is promoting this work, backed by the school officials, garden club, Audubon society, war memorial committee and many private citizens. This steep waste area will be made into an arboretum of native plants. The east end bordering on Broadway will have a planting of evergreens to match those across the street, and the east



*High School Biology class working at cleaning up "Holubar Ravine."
Photo by Muench, of Boulder Camera.*

General view of site of Arboretum from Broadway, looking east. Planting of evergreens will be made here to balance that across the street.—Photo by Ed Schneider.



end will feature "Cactus Hill." The value of this project will be two-fold: landscaping and beautifying the background of the athletic field, and providing a place to display a great variety of the native trees, shrubs and wild flowers.

Not every community can go as far in developing their horticultural possibilities as has Boulder, but there is no place in the state which cannot much improve the appearance of their community by planting many more things than they now attempt to grow.

OREGONGRAPE

Mr. S. R. DeBoer calls our attention to the fact that the reference to Oregongrape in the article in the December Green Thumb may be misunderstood. This article refers to the Eastern Mahonia, and should not be

confused with our native plant. He gives below the comparative description: Colorado Oregongrape is *Mahonia repens*, or Creeping Mahonia. It grows not over two feet high, and

tion of the two species. The correct name for our native usually under eight inches. It holds its leaves all winter, those in the sun turning a beautiful red and those in shade remaining green. It suckers by underground runners, and partly for this reason is very hard to transplant. It has normally less leaflets than the Eastern type.

The Eastern Oregongrape is properly called *Mahonia aquifolium*, or Oregongrape. It may also be found on the West Coast, but not in the Rocky Mountain area. It grows up to four feet tall, prefers shade and often loses its leaves in late winter. It does not have sucker roots and transplants more easily.

YOUR TREES---We Suggest at this Season



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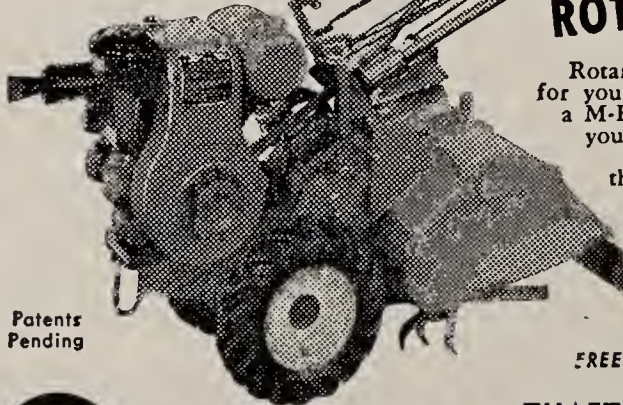
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WINTER BLOOM IN THE GARDEN

FOR the long months between the disappearance of the last warm-hued chrysanthemum and the awakening of the first crocus, most Rocky Mountain gardeners depend on the bright-berried shrubs outside and window-garden flowers within for colorful winter accents. Yet we lose much if we ignore the few hardy plants that will bloom here in spite of all the blasts of winter, especially if they have a modicum of moisture and a somewhat sheltered location.

In my own wind-swept garden and in every month of winter, I have found bloom of the little *viola tricolor*, better known as heartsease, Johnny-jump-up, Shakespeare's pansy, or by many another common name. Waif though it is and sometimes too persistent in small, neat gardens, I shall always keep it for its bright hardihood. In mild, reasonably moist winters, it blooms in the open, perhaps on the sunny side of a clump of daisies. Even in our harshest and driest weather, it produces scattered bloom in protected borders on the south and east. The hardy *viola cornuta* hybrids, Blue Perfection and Yellow, show bloom after every snow, often somewhat battered, it is true, but with fresh buds ready to open after a few days of sunshine.

Buds are swelling now (early December) on the Christmas roses set out last year. Established clumps are doubtless in full bloom in gardens in various parts of Denver. The best of these hellebores (they are *not* roses) is *H. niger altifolius*, not too easily found in the catalogs, but available from a few Eastern firms in spring and fall. Winter's harshness cannot prevent these pearly buds from opening, but the exquisite bloom endures for weeks in its perfection if it is protected by a large glass jar. As a cut-

flower it lasts two weeks in the house. The Lenten rose, *H. orientalis*, blooms later, yet before the spring season opens in our gardens. It is an oddity with its queer dark maroon flowers and well worth having in our season of dearth. All the hellebores, so far as I know, prefer summer shade and winter sun, with plenty of moisture and a soil reasonably well supplied with humus. A small book about them has just been published by the Luedy growers of Bedford, Ohio, which should answer some of our many questions about their care. Arthur and Mildred Luedy have grown the plant for twenty-five years and presumably know most of its likes and dislikes by now.

GARDEN GADGETS

Two very interesting garden gadgets were demonstrated by members of the Men's Garden Club when speakers from their membership took over the Friday evening meeting at Horticulture House November 26th. Martin R. Keul demonstrated his home-made "soil stirrer" which consisted of an old tire iron bent at a right angle and attached to a hoe handle. This made a narrow one-pronged hoe to stir the soil around crowded vegetables and plants.

Robert E. Ewalt displayed the "water wand," an aluminum extension for the hose so that hard-to-reach places could be soaked. This is a product obtained at your seed store.

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IMPROVING THE HABITAT

By ALLEN S. PECK

THE program of shelterbelt planting embarked upon by the Colorado Game and Fish Department is of interest to farmers and foresters as well as to pheasants, cottontails and hunters. The Commission, and Director Cleland N. Feast, and his staff, are to be complimented on their far-seeing plans for providing more cover for the protection of small game and birds so that they may flourish and increase. The value of plantations of trees and shrubs in this regard has been clearly shown by the shelterbelt plantings of recent years along the eastern reaches of the Great Plains. Foresters, soil conservationists and others have long advocated such plantings on the plains farms and ranches of Colorado for the purposes primarily of protecting field crops and live stock and making farm homes more livable. Quite a lot of this has been done largely under the leadership of the State Forester and State Extension Service with help from the Federal Government through the Forest Service, under the Clark-McNary Law, and through the Soil Conservation Service. Now comes the State Game and Fish Department, throwing its weight and leadership into the movement for more and better shelterbelts from a different angle and one which should have great popular appeal to bird lovers, hunters and landowners alike.

The Game and Fish Department—unlike many others—has money to spend; money contributed by the Federal Government and by those of Colorado's citizens and visitors who like to hunt and fish. To what better use can some of this money be put than to plant acres and acres of trees and shrubs—many of them food producing—for the mutual benefit of wild life and humans who are fond

of it for one reason or another? These plantings are to be made on suitable lands where the owners are agreeable and on state owned lands. No doubt some country school yards can be included. Certainly youngsters won't object to having a few birds and rabbits around. And this project may stimulate the developing of a number of small state parks, some possibly with fish ponds, on our eastern plains—a thing that many of us have been urging for years. At any rate here is a fine opportunity for some very desirable coordination between several state agencies on a program of land use that should be of great public benefit.

In this connection it seems to me personally that it was very unfortunate that the State Board of Forestry turned over to the Extension Service last spring the distribution and sale of tree planting stock.

The job, in my opinion, is logically part and parcel of the functions of the State Forester's office, which is distinctly an action agency and would be able to work closely with the Game and Fish Department in supplying the planting stock needed for the latter's shelterbelt project. It may be worth while mentioning at this point that the program of tree planting on the National Forests of Colorado has been shrinking year by year and that the Forest Service nursery at Monument is now being operated at only about 20% of capacity. It would seem that some way could be found to make use of the splendid plant and the techniques that have been developed there the past thirty odd years, to provide a lot of the stock that will be needed for a good strong coordinated state program of game cover, windbreak and park planting.

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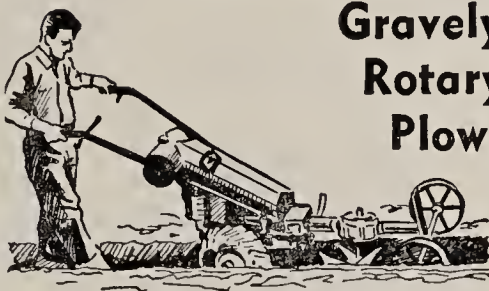
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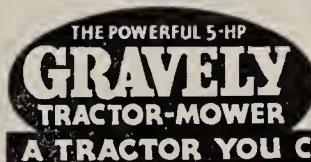


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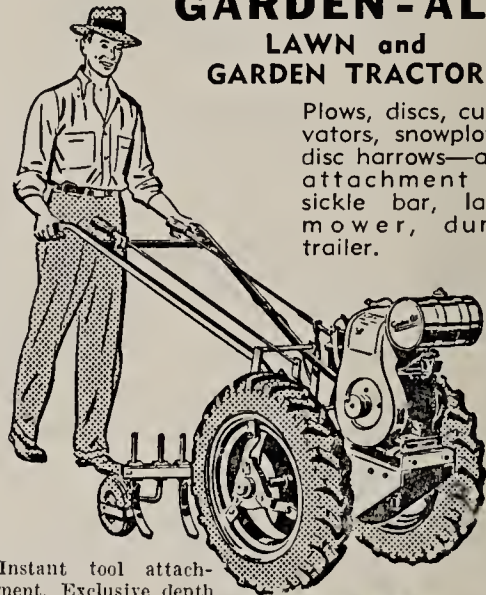
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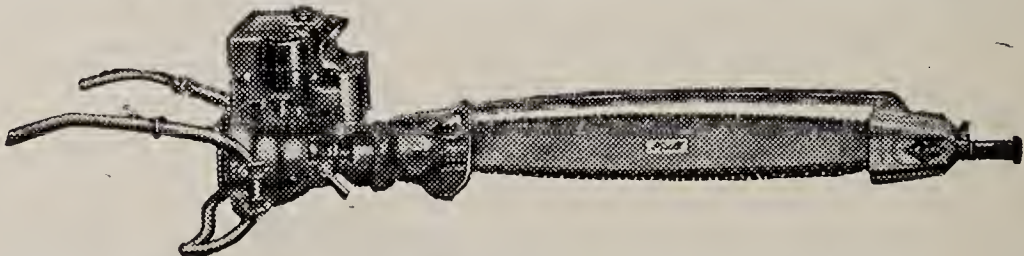
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COLORADO 4-H HORTICULTURAL CHAMPIONS

CHAS. M. DRAGE

Extension Horticulturist, Colorado A. and M. College

JUNIOR horticulturists in Colorado take their project work seriously and they are well rewarded. Colorado is proud of these junior gardeners and of their outstanding achievements. In national competition they are advertising Colorado as a horticultural state.

In 1946, Wayne Delventhal of Brighton, Colorado, was named Grand Champion Youth in the National Green Thumb Contest; also, National 4-H Garden Champion and Sectional Champion in the National Junior Vegetable Growers Association.

In 1947, Dorothy Freziers of Manitou Springs, Colorado, received the National 4-H Championship in home beautification. Harold Rupert of Pueblo, Colorado, was named National 4-H Garden Champion, and Keith Delventhal of Brighton was named Regional National Junior Vegetable Growers Association Champion.

In 1948, Keith was named National 4-H Garden Champion, and Vanita Hall of Peyton, Colorado, was named Sectional National Junior Vegetable Growers Association Champion.

Wayne, Dorothy, Keith and Harold have all received trips to the National 4-H Congress held at Chicago. Keith also received a trip to the National Convention of the National Junior Vegetable Growers Association held in Mississippi in 1947. Besides the many county and state prizes received by the champions, they have received \$1,600 in scholarships as awards in national competition.

In 1948, nearly 2000 boys and girls

from town and country were enrolled as 4-H members in gardening and home beautification projects.* In the gardening projects, new and younger members are taught the fundamentals of gardening and they have small gardens to supply a part of the vegetables for the family during the growing season. As the members grow older and become more experienced, their gardens become larger. The aim is to eventually make them leaders in the field of commercial vegetable production, marketing or processing.

Home beautification projects start with annual flowers, then come perennial flowers, lawn care, mapping and finally the fundamentals of landscape. The appearance and service features of many Colorado yards have been greatly improved by boys and girls receiving instruction in their 4-H club from several hundred volunteer 4-H leaders.

While the achievements of the champions are glamorized, it is the competition of the several hundred 4-H members enrolled in the same projects back in the local community which makes for National championships. Each year there are many 4-H members whose work is nearly as good as those who win National honors, or perhaps good enough for National honors, but they must win the state honors first.

*The 4-H program is open to any boy or girl between the ages of 10 and 21 who is not doing college or university work. It is sponsored and directed on the state level by the Extension Service, Colorado A. & M. College, and on the county level by the county Extension agents.

Back cover—Young Tuliptree at 2233 4th, Boulder.



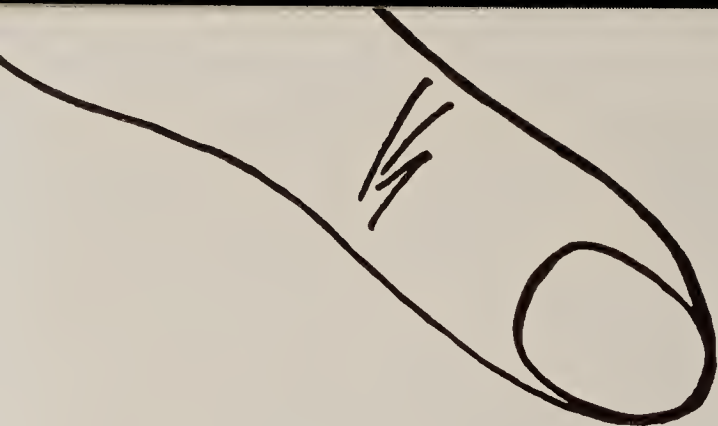
The Green Thumb

FEBRUARY, 1949



A Bulletin of the COLORADO FORESTRY AND HORTICULTURE ASSOCIATION

Organized in 1884 - - Denver, Colorado



GREEN THUMBS

MRS. LEWIS BLISS SHELBY

Mrs. Shelby has for many years been known as one of Denver's best home gardeners. Although she has always been an amateur gardener her knowledge of plant names and how to grow plants is as good, if not better, than most professionals. She was among the first to grow the Christmas-rose in Denver and has made large collections of eastern acid-loving plants which grow in the woods such as Primroses, Rock plants, Ferns, Fragrant Pelargoniums (Geraniums) and English hybrid Chrysanthemums.

All of Mrs. Shelby's friends and neighbors love gardening and flowers as she is always willing to give them some plant for their garden or friendly advice as to the best way to grow their flowers. Her enthusiasm is very contagious.

When Mrs. Shelby entered the business world as buyer and manager of the plant department of Woolworth's big down-town store she made use of her wide and thorough knowledge of horticulture and has made her department one of the best in the store.

She does not have as much time to garden now as she did but she gives advice and inspiration to many a flower lover and she still has a very green thumb.

BOTANICAL TRIPS

For the last two years we have conducted botanical exploration and collection trips to various parts of the state. These trips have been primarily work trips but the ones who have participated in them have enjoyed them

immensely. We are now getting together information to decide on the places where we will go in 1949 and the dates. If you would be interested in helping on such a trip please let us know at once, giving your preferences as to time and place.

FEBRUARY SCHEDULE

Friday, Feb. 4, Horticulture House, 7:45 P. M.

Bill Bullard will show Kodachromes of Mexico.

Monday and Tuesday, Feb. 7 and 8, Rocky Mountain Horticultural Conference, Cosmopolitan Hotel.

Thursday, Feb. 10, Horticulture House, 8:00 P. M.

Rose Society.

Friday, Feb. 11, Horticulture House, 10:30 A. M.

Mrs. John Newman will demonstrate corsage-making.

Wednesday, Feb. 16, Horticulture House, 8:00 P. M.

Commercial Men.

Friday, Feb. 18, Horticulture House, 7:45 P. M.

Harold Roberts will show Kodachromes of "The First Wildflowers."

Sunday, Feb. 20, 9:00 A. M.

Meet at Horticulture House for trip to Hogback for first wildflowers.

Led by Geo. W. Kelly.

Thursday, Feb. 24, Horticulture House, 8:00 P. M.

Iris Society.

Friday, Feb. 25, Horticulture House, 10:30 A. M.

Planning the New Home Grounds. Discussion led by Maurice Marshall.

We are planning a series of wild flower study classes throughout the spring and summer. Kodachromes and pictures will be shown once a month on Friday evenings. This will be followed on the next Saturday or Sunday by a trip to the hills to see these flowers as they appear. These classes and trips will be led by the leading botanists of this area.

SOME THOUGHTS ON TREES

FRED R. JOHNSON—U. S. Forest Service

THE discovery of the Dutch elm disease in Denver and the possibility that it may at some time kill many of our fine American elms raises a number of questions in the minds of tree lovers. There are more American elms in Denver than any other species—100,000 according to an estimate made for the American Forestry Association some years ago.

Some one remarked recently, "It might be a good thing for the City to have the Dutch elm disease kill a lot of elms. There are too many trees in our residential areas." However that is a drastic method of thinning with which we cannot agree. It is true that in the past many trees were planted too closely. On some streets

the trees are only about a rod apart. They look fine for the first ten years. Then they begin to crowd each other and what a lot of misshapen, sickly looking trees we have. Too many property owners do not trim or spray their trees, and they become fertile fields for the elm scale, the elm beetle and eventually, perhaps, the Dutch elm disease.

In the older sections of the City, the occasional death of a tree, as it completes its natural cycle, has thinned out their number to a reasonable spacing. However in a district, like Park Hill for example, where much of the street tree planting was done 30 to 40 years ago the trees are very close together. Moreover on many of the narrow residential streets they form a canopy in which the older trees overtop those more recently planted on both sides of the street. A virulent attack of the Dutch elm disease, such as has occurred in the East would play havoc. There would be some sad looking streets.

Of course where there is a mixture of other species a heavy loss of elms would still leave a sprinkling of soft maples, green ash, hackberry, cottonwood, and others. Too often, however, the individual property owner planted all elms or all maples, so that the elm lover might have to start from scratch in case an epidemic kills his trees.

Several years ago in connection with a survey of the prevalence of the elm scale, I tallied all of the trees in 12 blocks in Park Hill (a block in this study means one side of the street since on certain blocks both sides of the street were tallied and in others only one). The tally showed 133 American elms, 82 soft maples, 17

*Birch Tree in City Park
Photo by C. J. Ott.*



Chinese elms, 7 green ash, 6 Carolina poplars, 2 Bolleana poplars, 1 box elder, and 1 Russian olive—a total of 249 trees. Thus for the 6125 feet of street frontage covered, the trees were just about 25 feet apart, a spacing entirely too close for the proper development of the individual trees.

Suppose we have a heavy loss of elm. What species should replace it? In addition to the tried and true species mentioned above, I am strongly in favor of thornless honey locust—not the thorny kind. The latter are an abomination and a real danger and should be ruled out. The thornless variety is a beautiful tree, easily shaped, if a little skillful pruning is done before the tree grows too tall. The foliage is not too dense. In other words, it gives shade but not too much. Some persons object to the pods, but they add a little variety to the winter landscape, as they gradually fall. One housewife objected because of the tiny leaves which stick to your shoes and are readily carried into the house. But that does not last long.

I would like to see more oaks planted in Denver. Have you seen a prettier tree than the red oak in the triangular piece of ground formed by the intersection of 17th and Park Avenues and Downing Street? This tree has a beautiful green foliage all summer and the brownish red coloring this fall has been a joy to behold. This particular tree, I am told by S. R. DeBoer, was given to the City by George Van Law, an early member of the Denver Park Board and prominent in City beautification. Another beautiful red oak specimen is growing in City Park near 17th Avenue and Garfield and not far from the lily pond. Then you are familiar with the red oaks in Washington Park, near the entrance at Marion and Virginia.

To wind up these rambling thoughts on trees, have you ever thought what the new residential sections will look like in years to come in contrast with our forest-like city, as viewed from the air? I am referring, of course, to the *new look* in City landscaping—narrow side walks next to the curb, planting consisting mostly of shrubbery, and an occasional blue spruce, silver cedar, or deciduous tree. I wonder if these home dwellers are not going to miss the shade trees for which Denver has been noted among Western Cities. It's the occasional hot days we have in Denver, when temperatures register over 90°, when shade trees are appreciated. Personally I would like to see a medium between the very dense shade tree growth we have in some sections of Denver and the open lawns characteristic of the newer residential areas.

*American Elm Tree in City Park—
Photo by C. J. Ott.*





NATURE EDUCATION DRAMATIZED FOR CHILDREN AT THE MORTON ARBORETUM

HELEN BOSWORTH

ON a recent trip to the Morton Arboretum at Lisle, Illinois, I was fascinated with the educational program which was described to a Garden Club group by Mrs. Raymond Watts, the head of the Educational Department of the Arboretum. These classes are free and open to all ages. Naturally those for small children are separate but even these are vitally interesting as Mrs. Watts demonstrated them. Huge cardboards were displayed, known as dioramas, with the outline of a forest sloping to a meadow. On these, the youngest students such as Campfire Girls, Blue Birds, or Cub-Scouts, have the fun of placing the proper paper birds and flowers as they appear during the spring, summer, etc. (Some special substance makes these papers stick or come off at will.) A class of adults might well have difficulty in getting

all these in their proper order and naming them also!

While I was there two young people, 12 and 14, came and, *unrehearsed*, demonstrated the pruning of a small tree. This tree was balled and put in a pot for convenience. Both children seemed delighted with the prospect and were working hard at the tree, explaining why they did this or that, when I had to leave to take my train back to Denver. I was so fascinated by the pruning lesson that I almost missed the train!

Another most interesting feature at the Arboretum is a permanent exhibit of the educational work. Particularly striking were the "Farm Scenes" made by young people from cardboard and placed in boxes about 18 to 24 inches square. The houses, barns, etc. were to scale and the backgrounds were painted in to demonstrate the good

and bad ways of farming. They showed where contour planting should be done with crops or fruit trees, erosion controlled, etc. It was a very practical example that the students who did them could certainly never forget.

The most popular exhibit in the room was something resembling a pin ball machine—at least it was as popular as one! It was a glass case that stood against the wall, with about 20 different compartments. Each had a leaf or leaves in it. At the corner of each compartment was a small hole. A list of the correct names of the trees from which the leaves came was attached to the side of the case, with a similar hole by each name. Also attached were two pointed sticks with metal tips. When, with these sticks, one punched the right name at the same time as the right leaf, a light went on and one knew he had hit the Jack-Pot! It would be a fascinating game for all ages and I am sure that no one could forget the look of a birch leaf or a special kind of ever-

green—after the thrill of identifying it correctly and seeing the light go on.

With Denver's great increase in population, new streets with new houses are springing up everywhere. This means new plots of ground to be developed. Since trees contribute something to the garden which nothing else can, they should be considered first. Because they are big and of a lasting character, they are often considered expensive; but their first cost, —including that of planting, pruning, spraying, and feeding when necessary, —is far less than a lawn, a perennial border, or almost any other garden feature. Trees will stand neglect for years, but after even two seasons without care, a garden becomes a wilderness.

—HELEN FOWLER.

Don't forget the Rocky Mountain Horticultural Conference, Cosmopolitan Hotel, Denver, February 7 and 8, 1949. Two days devoted to latest Horticultural Information.

Mrs. Evelyn Johnston's group of Campfire Girls learn as they work on the Beaver Brook Trail.





Pictures on this page at home of P. J. Ferretti, 2025 Raleigh, showing the garden house, bell, lantern, and gate.—Photos by Jack Harenberg and M. Walter Pesman.



GARDEN INTEREST

JACK HARENBERG

A GARDEN can be interesting. Too often in landscaping our homes we stop with planting a few evergreens, shrubs, and trees, neglecting the finishing touches that make a garden outstanding.

Sculpture pieces—fine garden companions—are used only rarely in Denver gardens. The use of such objects can do a great deal to enhance the design of the garden.

For striking garden-effects in silhouette, artificial lighting can be used to advantage. The related shadow patterns are quite pleasing.

Unusual lamps, designed with a particular architectural style or garden scheme in mind, are always "comment-causing."

Gateways, means of entrance and exit, can be decorative as well as useful. With just a little thought for design, the gate can be made attractive, and again, add a point to garden interest. Iron gates especially give strength to the garden.

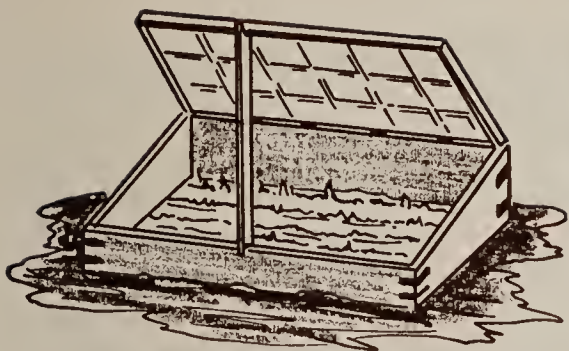
The use of well-planned bird baths, pools, rock gardens, barbecues and dry walls will further help to make our gardens pleasantly unusual.

It is well to keep in mind that unusual things must be skillfully handled to avoid making simply a museum of a garden.



As with all worthwhile permanent plantings attention must be given to soil preparation. While the ground can always be improved gradually around established plantings, it is far more desirable and easier to provide the best possible soil in advance. Deep working and the introduction of a generous amount of humus are essential.

HELEN FOWLER.



COLD FRAMES AND HOW TO MAKE THEM

So many questions on cold frame construction come from gardeners who want to raise their own plants—perennial as well as annual. Begin by putting frames in place. Spade deep and smooth soil off with a rake. For each square yard of area included, dump in about one and one-half bushels of good soil. If soil is heavy add the same amount of sand and about a bushel of humus. (Humus is ground peat moss, rotted vegetable matter from the compost pile or soil found under trees in woods.) All should be screened and very fine. Use no fresh fertilizer nor commercial fertilizer in seed beds. Work humus thoroughly into the soil before planting seed. Flatten with a board and cover with burlap. When plants are about 3 inches high, transplant to a bed, 6 inches apart in the row, allowing 12 inches between rows. Cultivate (I use a large nail) and care for all summer, and in the case of perennials you will have fine plants by fall. Try to have plants ready to transplant by June 1st. Add a little commercial fertilizer and manure, (*old and well-rotted*) to the soil in the bed to which you move seedlings.

HELEN FOWLER.

No "Green Thumber" will want to miss the Rocky Mountain Horticultural Conference, Cosmopolitan Hotel, February 7 and 8.



Ornamental Iron Gate at the home of Max P. Zall, 6th and Grape.



The Discus Thrower on grounds of George Olinger, West 29th and Wadsworth.



Unusual Sculpturing at entrance to Jack Harenberg's home.

Interesting Brick Wall Treatment at the Harry E. Short home, 701 So. Elizabeth.



Reading these extracts is a "must."

THE DYNAMICS OF RENEWABLE RESOURCES

IN the November number we gave the first of a series of three condensations from the outstanding talks given at the Inter-American Conference on Conservation of Renewable Natural Resources, held in Denver September 7-20, 1948. This issue will include extracts from section IV, having to do with the Dynamics of Renewable Resources.

H. H. BENNETT,
Chief, Soil Conservation Service,
U. S. Department of Agriculture
Washington, D. C.

"The paramount issue before the world—and the Americas—today is continuing peace. Peace treaties are written at the council table, but they may be broken all too easily on the eroded hillsides of nations who do not have enough productive land to supply the basic wants of their people. The most dependable means we know anything about for attaining this goal (of food and peace) is the use of practical, scientific soil conservation.

"Good land—or lack of good land—always has been a vital factor in the progress or decline of nations and of civilizations. The Americas have awakened to the danger of what is in store for us, if we do not turn away from past policies of exploitation and waste of our life-sustaining natural resources to a common policy of their wise use and conservation. Productive land is our most critical resource. Soil erosion is probably a greater threat to peace than even the atomic bomb. If in the past we had paid more attention to the world's land problems as a factor in permanent peace, international relationships today in all probability would be much better.

"Today we are faced with the de-

lemma of a limited and diminishing supply of land, on one hand, and a rapidly increasing population, on the other. Modern soil conservation is the prevention, control, or correction of all causes of soil decline. It is my opinion that erosion outranks all other causes of malnutrition, hunger, and famine—which are the prime contributors to disturbance of world peace and good will."

FAIRFIELD OSBORN,
President, New York Zoological
Society, New York, N. Y.

"From Canada to Patagonia there are too many evidences of land deterioration. The tempo of land misuse is quickened by rapidly increasing populations throughout the Western Hemisphere, as in truth throughout the world. Unfortunately, we are not dealing with a problem that is static. Its factors are constantly changing, in large part because of these growing population pressures. Consequently we are forced now to recognize one cardinal fact, namely, that the question of the preservation and wise use of our life-supporting resources must be dealt with in direct recognition of growing numbers of people. The population of the Western Hemisphere has increased in the last 2 months, by more than 500,000 people. Half a million more people to be clothed and fed from the products of a diminishing land base, even within the last two months! No wonder we are face to face with a situation of utmost gravity.

"Time is running against us. Action must be taken.

"I emphasize and lay great stress upon one paramount fact, namely, that it is more and more evident that our life-supporting resources must be

thought of as a unity rather than in entirely separate categories. The most important concept that we need to hold in mind is that each resource is dependent upon one or more of the others. It is even more accurate to say that each resource is dependent upon all of the others.

"Another result of urbanization which, as far as I am aware, has received extremely little consideration is the continual removal of organic matter whether in the form of lumber, crops or animals, from the land to the centers of consumption, either for industrial use or for food supplies. Thus immense quantities of organic materials are forever lost either through disposal plants or being channeled as refuse or sewage into streams and rivers. As a result these materials are never returned to their places of origin. As we are well aware the processes of natural production follow a fixed cycle whereby dying organisms, whether plant or animal, return to the earth thus supplying the organic base upon which new life is created. In effect we are hacking at the organic circle that is life itself. In order to offset this drain that we are placing upon the land's productivity we manufacture chemical fertilizers which are widely accepted as substitutes for the organic materials that have been removed from the land. Herein lies a major illusion for it must now be recognized that these chemical fertilizers cannot by their very nature be considered as such substitutes, but are no more than supplements that restore to the land only some of the ingredients of which it has been depleted. The major point of interest, however, that I would like to stress is that methods be developed whereby at least a considerable part of the urban and industrial organic wastes be not destroyed or lost but be returned to the land in order that as

a functional part of our present day civilization, the productivity of the land may not be permanently impaired."

WALTER P. COTTAM,

Professor of Botany, University
of Utah, Salt Lake City, Utah

"No organism or group of organisms since life began has so dominated the world as does man today. It is doubtful whether any cosmic event, including the recent ice age, has produced such catastrophic changes in the earth's mantle as has this intellectual biped whom Shakespeare characterized as being God-like in apprehension. When we see man annihilating time and space with his gadgets of communication, or unlocking the very secrets of matter, we must agree with the Bard in ascribing to man some attributes of deity. But when we witness 'man's inhumanity to man,' or observe with what reckless abandon he dissipates the resources of earth that support him, we can only marvel at his paradoxical stupidity. What new doors to the mysteries of both inorganic and organic nature man will soon unlock will surprise none of us. But with all these wonders of discovery and invention, there is not the slightest evidence to relieve us of the terrifying thought that in the future, as in the past, billions of human beings and countless hordes of animals and plants must continue to live by the soil.

"The slowness with which man comprehends his place in nature and, if he comprehends it, the reluctance with which he acts to preserve his niche in the universe remain mysterious peculiarities of his intellect. For nations of the Old World, whose attainment in the cultural arts has never been surpassed or perhaps equaled, flowered and decayed never again to rise. Whatever factors or combination

of factors led to the decay of empires need not concern us here, for the simple fact remains that they can never again assume a bright spot in the family of nations because their soil is gone.

"The poverty of the Old World, engendered partly at least by an impoverished soil was no mean factor in the rapid settlement of the New World. The invasion of an unspoiled continent by an intelligent but unenlightened civilization led to a psychology of abundance that lies at the bottom of our resource woes today.

"The resources of the earth in whose conservation the science of ecology can and should play an important role are those that are supported by the soil mantle: our water supply, both surface and underground; our farms, our flocks; our forests; our wildlife.

"While much research is still needed in all phases of conservation of renewable resources, the failure to maintain the soil in this country is due not so much to ignorance as to an apathetic public and to a lack of intelligent political leadership. It would seem that public education in the general ecological factors that maintain our renewable resources, and in the present serious state of their depletion is the only answer to these problems of conservation in a democracy where minority pressure groups can sway the judgment of politicians. With the world population surpassing the power of the soil to feed us, it is high time that the renewable resources be managed in compliance with our accumulated scientific knowledge."

ROYAL W. DAVENPORT,
Hydraulic Engineer, Geological Survey,
U. S. Dept. of the Interior,
Washington, D. C.

"Fresh water, as a renewable resource, is viewed in relation to the

supremely dominant and pervasive role of water in Earth processes and life. Fresh water has almost limitless utility for domestic, irrigation, industrial and recreational purposes. The advancement of civilization is closely linked with the quantity of water that is used by the people."

JAMES P. POPE,
Director, Tennessee Valley Authority
Knoxville, Tennessee

"There is now a great movement in the world to provide economic opportunity and a better standard of living for people of many lands. All nations, to achieve progress in this direction, are dependent upon the development and use of their resources. Of primary importance to the unified resource development of any area is the control of water. Through every period of history its control and utilization has had a direct bearing on the standard of living of the people.

"It happens that most of the basic resource development problems are so closely related that they should be dealt with together. The water resources of a region predominately affect the kind and character of its agriculture and forestry. The river, when converted to electric power, can furnish abundant energy that facilitates the development of industry to process local minerals and products of the land alike. The industrial economy of a region, the character of its agriculture, its transportation, are all tremendously influenced by these factors. They cannot effectively be dealt with as separate resource problems, since the manner in which any one is developed vitally affects others.

"The fact that the best way to prevent silting of reservoirs is to conserve the soil and forest cover, and to hold the soil and water on the land is a fortunate circumstance. It is clear that in the carrying on of these func-

tions, unified operation is of much importance if best results are to be obtained.

"Abundant, well-distributed rainfall, one of the most desirable resources of the world, had become a serious threat to the land resources in the Tennessee Valley region. When the intense annual rainfall occurs on land without forest or cover, destruction starts at once, especially on the hills and slopes. Carried away in its swift runoff are the elements of soil fertility—elements which mean health or sickness, plenty or poverty, for people living on the land. With adequate soil and forest cover on the slopes the runoff slows down. Water seeps into the soil to promote plant growth. It does not flow so rapidly into the river as to contribute to the devastating floods, but rather it is fed into the streams gradually. Thus, it is readily seen that on the successful control and development of the water resources of the Valley depends the welfare of its people.

"This movement toward the development of natural resources by the nations is a solid factor for peace in the world. Such development will require a long, hard and continuous effort. Yet, it is constructive effort—effort that will provide a firm foundation for the future. On such a foundation rests the hope, aspiration, and welfare of people the world over."

HONORIO PEREZ SALAZAR,
Chief, Lands Division, Ministry of
Agriculture and Livestock-Raising,
Bogota, Colombia

"Water, woods, soil, forage and wildlife comprise a biotic whole in relative equilibrium, the loss of which may result in the ruin of any or all of its constituents.

"Soil is formed through the action of man, animals, wind, water, ice and plants and its fertility derives primar-

ily from organic matter and clay. Forests protect the soil from erosion and contribute to its renovation. The management of forest wildlife is made possible by a knowledge of plant association and the habits of economically important animals.

"Forest land use, best managed on a basis of multiple use and their values, can be preserved under a system of sustained yield. Watersheds, wildlife and timber can be managed by proper harvesting, planting and protection from disease and fire. The use and growth of forests must be kept in balance or regulated accordingly to restore depleted land.

"Forests have a motor function in creating hydroelectric power for industry. The replenishment of ground waters and maintaining the flow of streams are dependent upon stabilized and forested watersheds. The establishment of hydroelectric projects should be accompanied by the reforestation of areas where they are located.

"The burning of plant growth sterilizes the soil, destroys its humus content, and reverses the constructive processes by which fertility is built. Fire can also serve as a useful tool if properly employed. In some situations it aids the control of plant diseases and influences plant succession in a predictable manner."

NEWTON B. DRURY,
Director, National Park Service
Department of the Interior
Washington, D. C.

"Some lands are so unique and precious that they should be preserved for public inspiration and enjoyment."

E. R. KALMBACH,
Wildlife Research Laboratory, Fish
and Wildlife Service, U. S. Department of the Interior,
Washington, D. C.

"Man who has done most towards

upsetting conditions which at one time were in reasonable equilibrium still occupies an influential position. He may accentuate still further that disruption or, with foresight and caution, he may make greatest use of a generous, yet exacting Nature. He may battle her stubbornly and perennially in attempts to gain his ends or he may so adjust his activities as to conflict the least with an order which is in itself obstinate and self-adjusting. It is that simple thought which I wish to emphasize—namely to live, as far as it is humanly possible, cooperatively, profitably and enjoyably with the wildlife that is such an essential element of our natural resources."

OLAUS J. MURIE,

Director, The Wilderness Society
Mosse, Wyoming

"The technique of conservation must vary with the nature of the thing to be conserved. First of all there must be agreement that something is worth saving. Without this agreement there will be confusion and cross purposes.

"We realize today the importance of the soil for human survival. Our scientists have learned much in the field of ecology and are prepared to give advice on techniques for insuring proper use of range for livestock and game, and for sustained yield use of our forest resources—to put in practice when the public becomes willing to accept them.

"In other words, we have made progress in our studies of wise use of material resources; the materials of the earth that insure our physical survival and creature comforts. But we know there are other important resources that contribute to our welfare; resources that are less easily perceived; intangible qualities or influences that help to shape for us a pleasant living, that give color to our experience and

aid us in our well known 'pursuit of happiness'. These intangibles in our environment are not as easily conserved or dealt with.

"Consider for a moment the conservation of wildlife. We have been concerned chiefly with providing protection for the birds and mammals, to prevent their mere destruction. Recently we have become more and more concerned with preserving also their natural habitat; not only saving their lives, but saving their natural way of life. We are beginning to appreciate the esthetics of the undisturbed operations of Nature in our forests, deserts, mountains and streams.

"Our concept of what constitutes the highest form of out-of-door recreation considers the animal life in its normal relations with forests and other vegetation; it includes unhampered streams and unspoiled lakes; the natural features of scenic mountains, open sage plains or desert cactus; the coastal rain forests, tropical jungles, or Arctic tundra. Each of these and many other features appeal to us and furnish the important elements of the intangible recreational resource we wish to preserve.

"We are beginning to emphasize the esthetic appreciation of the out-of-doors. Our recreation areas are beginning to hold for us not only the facilities for a certain kind of social vacationing, but an appeal to a certain kind of primitive beauty and adventure.

"We can no longer go out to seek new continents. Even the spirit of adventure is often stifled in us by the ease and comforts of modern life, or by the strife and discord that often interrupts normal living. But appreciation of Nature is not dead. We enjoy reading and contemplation of adventures of the long ago. We have already begun to plan for the conser-

vation of wild country where such experience in a more limited measure may be enjoyed.

"We have generally considered recreation a luxury, to be enjoyed by the few who had the means and the time for it. In other words, recreation has been considered incidental in our way of life. This concept is rapidly changing. Managers of large groups of factory workers recognize the absolute necessity of periodic relaxation. Our nervous systems are receiving the impacts of a noisy, turbulent, mechanical age. We are not holding up well under the strain. Nervous disorders are more prevalent. It is becoming evident that we must no longer consider recreation incidental. We must henceforth look upon it as part of our standard of living.

"These are experiences that fill a need in modern man, whom civilization has removed from the opportunity to strive and enjoy in a more primitive world with plenty of space. These are experiences that give modern man a touch of solitude and reflection, that take him out of the swarm for a time and imbue him with dignity as an individual. These are not needs of a few 'outdoor people.' Whether now realized or not, these are real needs of modern men. I believe the future will verify this belief. Medicine and psychology are already propounding it. The urgent question now is 'Will we act soon enough to preserve these last few wild places which each succeeding generation is bound to appreciate more than the last?' The last hour for making this sure in the United States is now upon us.

"In view of this obvious trend, this real human need for beauty and wholesome outdoor recreation in surroundings of inspiration, it has become necessary for us to revise our planning technique. It will no longer

do to plan our economic, commercial developments, whether they be dams for power and irrigation, or any other enterprise that changes the face of the land, without planning for the spiritual life of the people.

"But the great problem which comes first is to rescue from too hasty economic planning sufficient public areas for the future needs of our people who will demand a place to go for rest and recuperation. Our civilization has reached the degree of complexity and confusion where mental and spiritual health ranks in importance with the need for food. It will be necessary for the social and medical engineer to work side by side with the construction engineer if we are to achieve the satisfactions we hope for."

Register now for the Rocky Mountain Horticultural Conference, February 7 and 8. Call TAbor 3410 today to register for meetings and banquets.

RECOMMENDED BIRD RESTAURANTS

"The man's queer," the neighbors say, "he's gathering wild seeds all summer." But look what he has on his feeding board now — Juncos, Woodpeckers, Nutcrackers and Vesper Sparrows—even a Long-eared Owl comes occasionally. He has bacon rind nailed to a tree and makes suet pudding with oatmeal and corn mush and fat drippings. All kinds of birds seem to like that. Surely if there was a Duncan Hines for bird-feeding stations that one would be recommended.

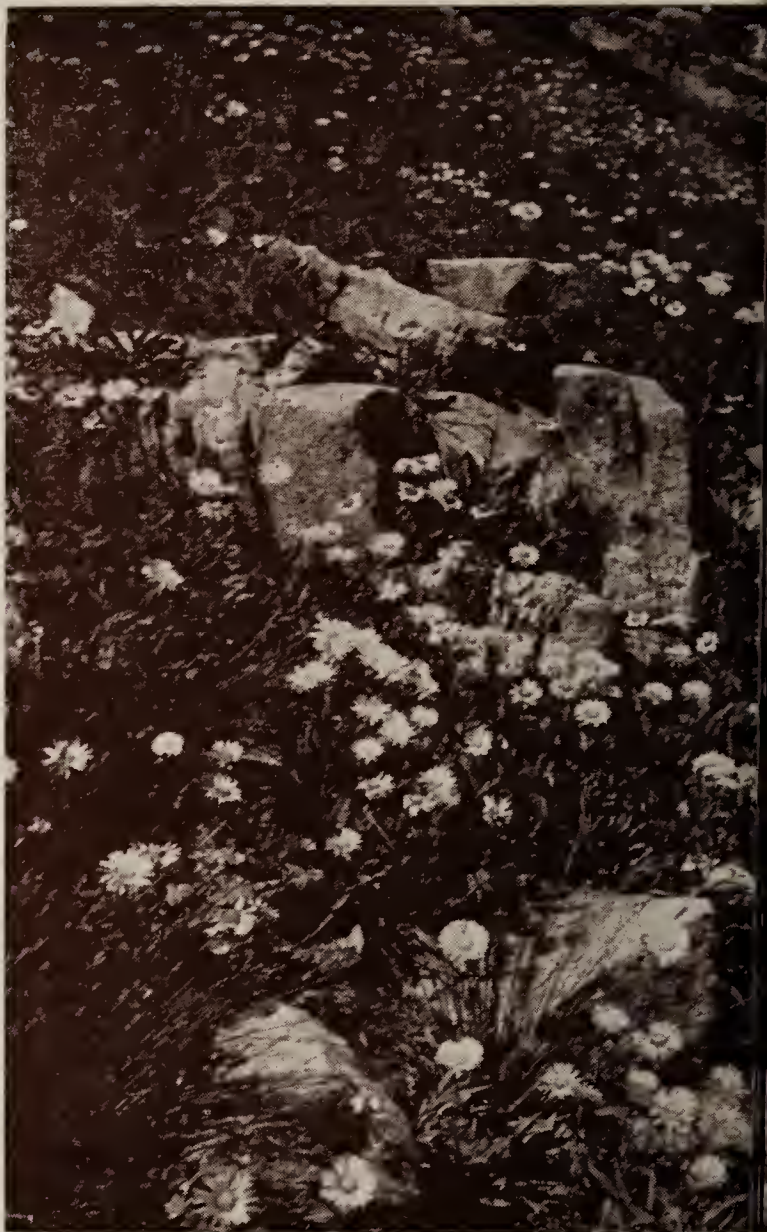
A. S.

Annual Banquet—Rocky Mountain Horticultural Conference. Make tentative registrations now—call TAbor 3410 or send registration to Horticulture House, 1355 Bannock, Denver 2.



Pasque Flower, Anemone ludoviciana.

Golden Banner, Thermopsis montana.



ROCK GARDEN

By L.

ALMOST everyone has, or wants a rock garden, but it seems that a great many people do not have a definite idea as to what plants are compatible to each other in such a project. To me a rock garden should simulate Nature as nearly as possible in other words, Tulips from the Old World do not harmonize with Columbines from Colorado. With this in mind, may I suggest some plants indigenous to this region, acceptable from the viewpoint of beauty as well



Colorado Columbine—*Aquilegia coerulea*.

Daisy, *Erigeron* sp.



FOR COLORADO

LAND

being representative of the conditions we are trying to duplicate. Before we go into further detail concerning the actual plants, let us consider the location for our material. To get the best results, the size of the stones used should largely be governed by the size of the plot allotted to the rockery; stones that are too small spoil the balance of a large plot, and vice versa. Perhaps the most important point is to so place the stones that they look as if they had always

been there. Avoid any artificial look if you wish to achieve a gratifying whole.

For the plants, let us begin with those that prefer a sunny situation.



Mariposa Lily, Calochortus gunnisoni.

Among the first to bloom are the Sandlily and the Pasque Flower, followed closely by Tradescantia, Yellow Violet and Bitterroot. At about this time the fronds of several Ferns that grow among the rocks begin to unroll. Among these are Lip Fern, Cloak Fern, Brittle Fern and Parsley Fern, all of these may be naturalized quite readily and do not require as acid soil as most Ferns do. There are three or four varieties of Calochortus or Mariposa Tulips that are very lovely indeed and are quite at home in the rock garden, although they may require some protection in the colder regions. Harebells and Blue Violets seem to do as well in sun as in semi-shade. For the larger garden Poppy-mallow and Leather-cup Clematis are a welcome addition.

This should bring us up to the blooming season of Mertensia, Penstemon (several varieties of which are suitable) and Gaillardia Golden Evening Primrose and Cone Flower (*Ratibida columnaris*) are well worth

growing, but both behave for me as biennials, although they are perennial in the southern part of the state.

For that part of the rock garden that has some shade and a more moist condition can be maintained, some of the most beautiful natives are at home. Trout Lilies, Globe Flowers and Shooting Stars should be planted more often. Several varieties of Columbines and Delphinium, as well as Monkshood thrive in semi-shade, especially so if well rotted Pine needles are incorporated into the soil.

Late Summer and Fall do not give us such a selection as do the earlier months. Lupines, Wild Sweet Peas and Purple Vetch are very showy. The Asters, Erigerons and Senecios carry on until frost. If space permits, *Verbena bipinnatifida* provides rosy-purple flowers until freezing weather sets in.

Although it is doubtful if anyone would care to grow all the plants I have listed in a rock garden, it must not be assumed that this covers all the plants that are suitable for a rockery. In fact there are a great many more, possibly some that are more desirable than those mentioned.

Beardstongue or Penstemon.



J. D. LONG

ONE of Colorado's outstanding horticulturists is gone. J. D. Long died at Boulder, Colorado, December 5, 1948.

He was the founder of Long's Seed store, an authority on gladiolus, iris and many other flowers which he grew in his nursery on north Broadway in Boulder, and for which he had developed more than a nation-wide demand.

In January of last year, Mr. Long was presented with a certificate of an award that had been made to him by the North American Gladiolus Council. In May he received a bronze tablet from the Council which reads: "In appreciation of the valuable contributions made by J. D. Long to the advancement of the gladiolus." In 1944 the New England Gladiolus Society awarded Mr. Long a gold medal which read: "For continued service to advanced horticulture, especially the gladiolus; and for original, valuable and progressively up-to-date directions given in readable language with a humor widely known and appreciated." He was in demand as a judge at "glad" state and national shows throughout the nation and had introduced a number of outstanding varieties.

In the spring of 1901 Mr. Long became a clerk in a novelty store in Boulder that had the name of Noah's Ark. The following spring he became manager for the store. Almost from the start Mr. Long introduced the handling of flower and garden seeds. This department under his skillful management continued to grow until he discontinued the novelties and changed the name of the store to The J. D. Long Seed Company.

In 1915 Mr. Long purchased a tract in north Boulder and began growing roots and bulbs. He found

the climate and soil ideal for the production of iris, gladiolus and peonies. Through the years he not only purchased new strains and originated many but through the medium of his catalogs popularized their growing throughout North America. His catalogs were always in great demand not only for their offerings of flowers but for the advice that he wrote for their care—and for his "J. D. Sez, Sez'e" column. It was filled with philosophical messages and humor.

Mr. Long was not only a successful business man and gardener but found time to participate in many civic activities.

DENVER COUNTY EXTENSION SERVICE

*What it Offers to the People of the
City and County of Denver*

The 1943 EXTENSION PROGRAM in Denver County consisted mainly of work with adults on the Victory Garden Campaign and the control of weeds, pests, and plant diseases. It consisted also of work with juniors in organizing and conducting 4-H Club work on Victory Gardens, poultry, foods and nutrition.

By 1948, the expanded program included work in Agricultural Organization and Planning. All classes of field crops; horticultural crops, fruits, potatoes, commercial vegetables, home gardens, home-grounds improvement; all classes of livestock; soil management and soil conservation; irrigation; agricultural economics; housing and home furnishings; nutrition and home-food production, preparation and preservation, health and safety work; home management; clothing and textiles; family relationships, recreation and community life, and a wide variety of informational service and cooperative work with industrial, commercial and agricultural organizations, and groups



California Lewisias growing at 8,700 elevation at Walden, Colorado.

HIGH ALTITUDE GARDENING

MRS. GEORGE J. BAILEY

I HAVE been interested for many years in experimenting to find what plants will do well in our high altitude. We have a home in Walden with altitude of 8200 and a summer home near Rabbit Ear Pass with altitude of about 8700 and in these two gardens we have successfully grown literally hundreds of varieties of plants from all over the United States, many of the far eastern or western plants doing as well or even better than the native Colorado varieties. We have a very small dolgo crab-apple tree which bore over a half bushel of lovely apples this year from which I made 64 glasses of jelly, preserves and butter. Our young currant bushes also were loaded with fruit and they are in a very unprotected windswept place.



Mrs. George J. Bailey standing beside her Dolgo Crab.

WHAT HUMUS DOES

Reprinted from Western Colorado Horticultural Society Quarterly Bulletin

Humus is useful in the soil because

1. It assists in breaking down rock material.
2. It improves tilth, loosening tight soils and binding loose soils together.
3. It increases the moisture-holding capacity of the soil.
4. It results in better aeration.
5. It reduces soil erosion.
6. It improves the chemical condition of the soil, storing and releasing nutrients.
7. It acts as a buffer in preventing sudden chemical changes.
8. It is a food for soil micro-organisms.

Eastern Trillium in Mrs. Bailey's Garden.



*Eastern Yellow Cowslips growing
at 8,700 feet.*

A MORE BEAUTIFUL AMERICA

*Reprinted by Permission from American
Fruit Grower*

Beauty of the countryside should logically originate from the horticultural talent of fruit growers. They are the largest, most prosperous and most influential horticultural group in the United States. To lead the way with attractive plantings around farm homes, with landscaped drives and vistas and with care and maintenance of ornamentals equal to that given the orchard is the natural bent of the fruit grower. Beauty in home surroundings returns contentment and satisfaction, an added joy in the noblest and most discriminating of occupations. Because tasteful gardens and grounds increase the owner's happiness is reason enough for planting them but, in addition, more beautiful country homes contribute to the cause of better living and moral and spiritual improvement.

The home of an orchardist should, therefore, reflect the horticultural instincts of its owner. But there is more than charm in identifying an orchard with well-selected ornamental plants. Its beauty makes an impression which the highway traveler likes to remember. There is advertising value in a well-planted orchard. Let us lead with the best planted homesteads in rural America!

HASTINGS' REPORT ON STATE FORESTRY

THIS association in cooperation with the Society of American Foresters has recently mailed to influential people over the state several hundred copies of the abridged report of the Hastings' "Survey of State Forestry Administration in Colorado". Governor W. Lee Knous made arrangements to have this abridged report prepared in quantity for the information of citizens of the state. He writes in part: "The value of our State's renewable resources—forests, forage, soil and water—cannot be over-emphasized. Intelligent planning for their conservation, improvement and wise use is vitally important to the future growth and development of Colorado. I have asked all members of the incoming General Assembly to give careful study to the find-

ings and recommendations of the survey to the end that the subject may be given proper and advised consideration by our next Legislature."

Any who have not seen this report may obtain a copy at Horticulture House as long as they last. Governor Knous urges everyone interested to inform themselves on these conditions "in order that informed public support will be forthcoming for any program for conservation and development of our renewable natural resources which the 37th General Assembly will formulate."

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WE NEED RESEARCH ON ORNAMENTAL PLANTS

GEORGE W. KELLY

EVERY few days some new pest attacking our ornamental trees comes to my attention. A few years ago we thought that we were very fortunate in Colorado to have the native and introduced trees and shrubs so free of serious pests. Suddenly we are waking up to the fact that when some of the common pests of the east become established here and they are not kept in check by their natural controls they may spread very rapidly.

There is no existing agency or group which has the time or money, at present, to follow up these pests as they are discovered and to suggest suitable remedies. The peach growers and potato farmers may exert some pressure and obtain some help in solving their problems but the growers of ornamental plants have not been organized in a way to demand attention. The Colorado Forestry and Horticulture Association is the nearest thing to such an organization but its most valuable contribution at present is to suggest the needs and the action which should be taken.

The European Elm Scale has established itself in the state in recent years until there are few American elms that are not seriously damaged by this pest. Recently the Cottony Maple Scale has appeared again and is rapidly spreading not only to maple but to elm and many other woody plants. A serious attack of borers in birch and honeylocust has been noted. The Cedar-hawthorn Rust has spread to an alarming extent in recent favorable years. The threat of the Dutch Elm Disease has been very real as the bark beetles which spread this disease have become very numerous. Chlorosis in maples and oaks is very preva-

lent and there are strong indications of other diseases of the maple. Fire-blight in apples, crabs, hawthorns and mountainash is a continual source of worry. Aphids and Red spider have become increasingly serious in Colorado juniper and Colorado spruce trees. A new Borer and a new Caterpillar have appeared to attack the spruce.

There are several agencies already set up which are capable of giving real assistance in this work if they were authorized to spend the time, manpower and money on these problems. The Federal Bureau of Plant Industry and the Bureau of Entomology and Plant Quarantine have been very helpful and are equipped to put the best experts on the problems but do not have the funds available. The various departments at Colorado A. & M. College are very interested but again do not have the funds to do any extended work. The State Entomologist has offered to help if authority and funds are supplied. Commercial tree men and nurserymen in the Denver area have indicated a willingness to cooperate in any way possible, even to the point of some financial help. The Denver Public Schools and the Denver Parks Department are anxious to help in this research work. Work is needed in all phases of ornamental plant work as well as just pest control. Testing new plants, breeding improved varieties and finding improved cultural methods are some of the things needed. The state A. & M. College at Fort Collins and the Cheyenne Horticultural Field Station are set up to handle this kind of work if they are authorized to do so.

The paramount need now is enough

interest shown on the part of Colorado citizens to convince some of these agencies that this work is imperative and then continued interest to persuade legislators to appropriate the necessary funds.

Organizations such as this associa-

tion may make these appeals but a few individuals backing them up with requests to their senators and congressmen are necessary to secure action. This is not the other fellow's responsibility. If you love Colorado's trees it is up to each of you NOW.

WINTER PROTECTION FOR TREES AND SHRUBS

Reprinted from "Shade Tree Digest" by Swingle Tree Surgery Company

WINTER is often a highly critical period of the year for trees and shrubs, since injuries that stem from adverse weather conditions are likely to be severe. While it is not always possible to provide absolute protection against the elements, much can be done to reduce the damage attributable to two of the most common forms of winter injury.

Winter drying, which affects evergreens particularly, results from a deficiency of available water either thru freezing of the soil or from actual drought. Transpiration, the release into the air of water vapor through the leaf and branch surfaces, never ceases. The rate of transpiration is generally low throughout the winter months, but increases during periods of warm, sunny weather and strong winds. Unless the roots can absorb enough moisture from the soil to replace the water lost during such periods, the leaves wilt, turn brown and die. Terminal twigs on the side of the tree most exposed to the sun and wind are usually the worst affected, though occasionally the entire tree is injured or killed.

The danger of winter drying of evergreens can be reduced by providing a mulch of dry leaves, rotted stable manure or hay, eight inches to a foot in depth and extending well beyond the spread of the roots. This tends to prevent excessively deep

freezing of the soil and thus facilitates absorption of water by the roots. To insure an adequate supply of soil moisture during the winter months evergreens should be watered heavily before the ground freezes. With small evergreens the rate of transpiration can be reduced by protecting each tree against sun and wind with a screen of burlap or similar material attached to stout stakes driven firmly into the ground.

Wind, snow and ice storms annually destroy or mutilate thousands of valuable shade trees. Following such storms it is not at all uncommon to see entire trees uprooted, and others with branches so split and broken that repair is almost impossible. Here, an ounce of prevention is certainly worth many pounds of cure, for much of the injurious effects of such storms can be averted. By judicious pruning, unduly thick crown growth can be thinned to provide greater security for the tree in high winds. Abnormally long and drooping branches, usually too weak to withstand heavy accumulations of snow and sleet, can be shortened, or occasionally removed, without impairing the symmetry or beauty of the tree. Branches with V-shaped crotches, which are structurally weak, can be made more secure against storm damage through the installation of cables and braces.

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CARE OF HOUSE PLANTS

DORAS HEDBERG

Probably the greatest cause for the high death rate in house plants is drowning. At least this is indirectly true. If a plant does not actually die from too much watering, it puts forth a spindly, pale, unnatural growth, which causes the owner to become discouraged, and it is committed to the trash heap.

In the cacti and succulent group, one finds the exact opposite taking place. How often does one hear, "Oh, cacti need practically no water." This is not true. They do need water in moderation. A thorough soaking, clear through the pot, is very beneficial to all plants. A good method being to place the pots in a shallow pan, partially filled with water. In this way it is soaked up from the bottom. Spraying the tops at this time is highly recommended. All plants enjoy a slightly warm bath occasionally, even the very temperamental African violet. Care should be taken to keep the plants out of the sun until all the moisture has evaporated from the leaves, otherwise they will become sunburned.

A humid atmosphere is most highly desired. A humidifier or containers of water set among the plants is very helpful. Ivies or other vines which do well in water are excellent for this purpose.

Each person has to take the time and interest to study the specific conditions under which his own plants are

placed. Then only will he know "how often" to water them

A minimum of water and a maximum of sunshine, for most plants, is a good rule to follow

In order to give my camellia plant enough humidity I made a cheesecloth tent over it and I spray the cloth at least once a day. I keep the plant in the cool basement and it now has several lovely pink blossoms. It is a great joy on these cold wintry days although I do have to raise up the cheesecloth to look at the blossoms.

MYRTLE R. DAVIS.

WILDERNESS SOCIETY

Many of our members will be interested in the objectives of the Wilderness Society.

"The Wilderness Society is a national conservation organization incorporated in the District of Columbia to secure the preservation of wilderness—to carry on an educational program concerning the value of wilderness and how it may best be used and preserved in the public interest—to make and to encourage scientific studies concerning wilderness—and to mobilize cooperation in resisting the invasion of wilderness—*There are 77 wilderness, wild primitive, and roadless areas within the national forests. There are 28 primeval national parks. Other Federal areas with wilderness include national monuments, wildlife refuges, and Indian reservations. There also are State parks and preserves where wilderness is protected.* The Wilderness Society's most particular, immediate purpose is to DEFEND THESE AREAS — Its long-time, broad purpose is to increase the knowledge and appreciation of wilderness.

Annual Membership is \$2.00. Send to The Wilderness Society, 1840 Mintwood Place, N. W., Washington 9, D. C.

TUBEROUS BEGONIAS

By JACOB V. SCHAEZEL

TUBEROUS begonias should be more often planted in the Denver area, including the mountain area, because they have proven very successful over the years.

The bulbs are generally purchased and planted in January and February. Care must be used in seeing that the concave portion of the bulb is always planted up. One can usually observe the pink growth which starts about this time. Plant this bulb by pressing it down with your fingers in a flat containing about one-half peat, one-fourth leafmold and one-fourth light loam soil. Mix with soil and peat moss as much bone meal as three fingers will hold. Additional fertilizer is not necessary. Place the flat in a dark corner until a good growth is started. This should be about a week to ten days.

When the plants are a few inches tall, plant them in separate pots and you can then put them in a sunny location in the house. Keep them there until all danger of frost is past. They then should be planted outdoors where they get at least a half day's shade.

The plants do well in moist soil but, of course, care must be taken to see that it is not too wet. If possible, plant under or around trees which permit the sun to go through them, for example, Honey Locusts. Their leaves like to be sprinkled especially in the summer evenings.

Personally, I like the double types. They are exotic plants which have short stems and when picked and floated on top of water in a flat vase, they ordinarily last four or five days. They bloom from June until frost and have no known insect pests. A light frost will not kill the bulb, but

after the first light frost, they should be taken up, dried out by keeping inside for a few weeks and then the dried out top should be removed from the bulb. The bulb is preserved in dried peatmoss in a temperature around fifty degrees. The bulb will last as long as 15 years.

The plants can be divided by taking off small parts of the outer rim of the bulb containing a shoot. The February, 1947 issue of *THE HOME GARDEN* contains a very fine article on kinds, types, etc.

Are you planning to attend the Rocky Mountain Horticultural Conference? Reserve February 7 and 8 for the sessions of the Second Annual Conference. Call TAbor 3410 to make tentative registrations or send registrations to Horticulture House.

In planning your garden mulches, keep in mind that the object of covering is not to keep the plants warm but to keep the ground frozen and to maintain an even temperature within the soil. This answers the question of the *TIME* to apply the covering—after the ground is frozen. Have you covered your roses? It is not too late. I like to use good topsoil for covering. Instead of removing the soil in the spring, it is worked into the bed. The dead tops of the plants should be removed at this time. From the live green of the stem remaining will come the growth which will produce the roses for the year.

HELEN FOWLER.

Have you read ALL the extracts on pages 10-15? They contain the most important statements ever made in this magazine.

Ask us now to check your trees for spraying or trimming that they may need at a later date. Now is the time to have dead or crowded trees removed. We have the experience and equipment to do a good job. Call on us for an estimate.

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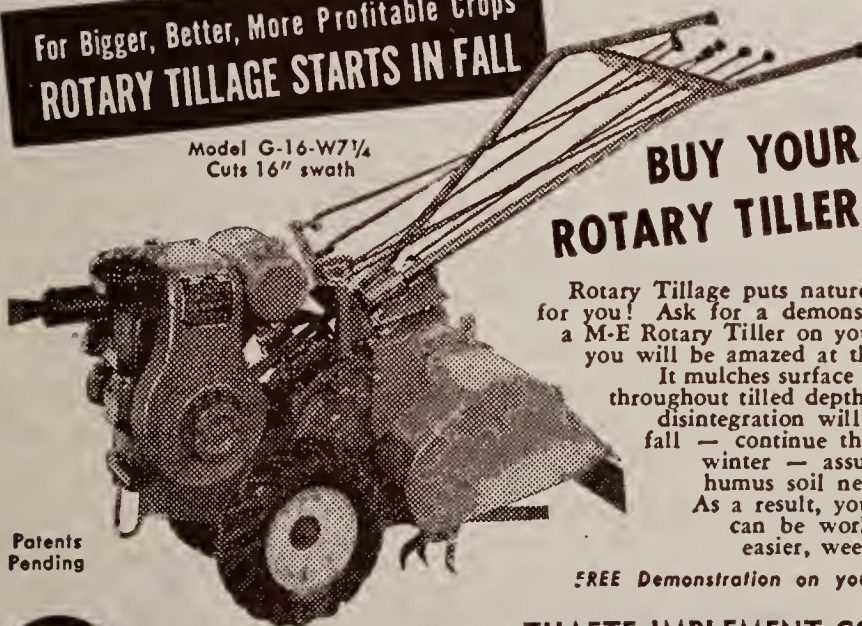
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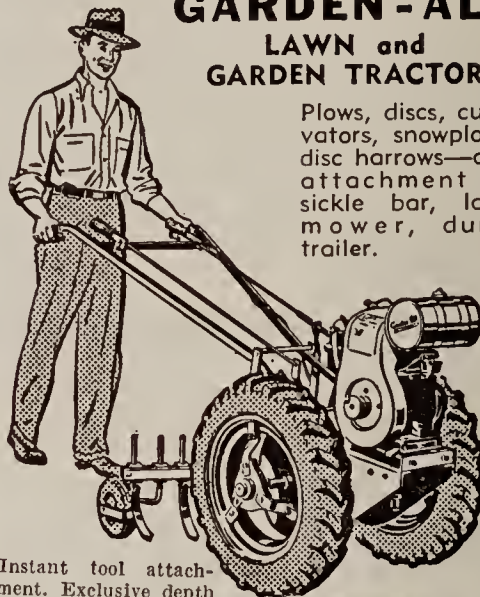
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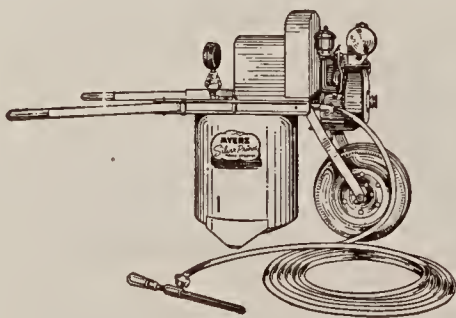
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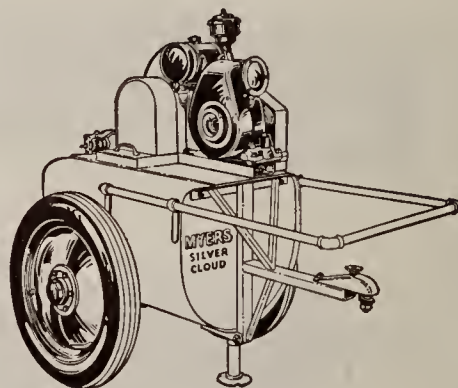


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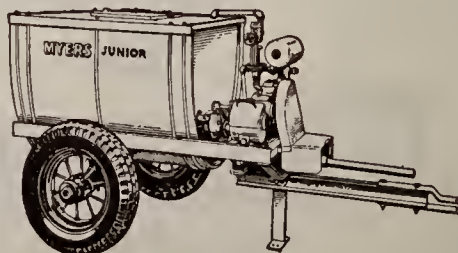
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ROCKY MOUNTAIN CEDAR

Taken from U. S. Forest Service—Region 2—Administrative Notes

IN 1938, an outstanding specimen of Rocky Mountain cedar (*Juniperus scopulorum*) was photographed on the Roosevelt Forest. This tree is located in a gulch about 600 yards northwest of the old Eggers post office. It consists of a single massive stem measuring 28.1 inches, d.b.h. and is 39 feet high. The unusual size, development and age of this tree (or any others of its species of equal or larger

size) fully justifies its preservation from possible damage or cutting, since it represents probably about the maximum development of Rocky Mountain cedar in Colorado. We may be a little over optimistic about this being the largest specimen of *Juniperus scopulorum* in the Region. If anyone knows of a larger individual tree of this species, we shall greatly appreciate his reporting it.

Rocky Mountain Cedar referred to is on back cover.



The Green Thumb

MARCH, 1949



A Bulletin of the **COLORADO FORESTRY AND HORTICULTURE ASSOCIATION**

Organized in 1884 - - Denver, Colorado

MARCH SCHEDULE

MARCH 4, Friday, 10:30 A.M. at Horticulture House. *Getting The Garden Ready for Spring*, by Mrs. Persis Owen.

MARCH 10, Thursday, 8 P.M. Horticulture House. Rose Society. Everyone invited.

MARCH 11, Friday, 7:45 P.M. Horticulture House. Dr. William Weber, Botany department of Colorado University, Boulder, will talk on "The Geography of Colorado Plants."

MARCH 16, Wednesday, 8 P.M. Horticulture House. Meeting of Commercial tree and Nurserymen.

MARCH 18, Friday 7:45 P.M. Horticulture House. Mr. and Mrs. Har-

old Roberts will show the principal characteristics of the main plant families, illustrated with their incomparable kodachromes. This will be introductory to the series of "plants of the month" to follow through the spring.

MARCH 20, Sunday. Meet at Horticulture House at 9 A.M. Trip to Daniels Park or other suitable place to find some of the first wildflowers. Led by Mrs. Katherine Kalmbach. Come dressed to walk, and bring a pocket lunch.

MARCH 25, Friday, 7:45 P. M. Horticulture House. *How To Plant*, by Henry Gestefeld. Everyone enjoys Henry's talks for their down-to-earth information and lively humor.

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ANNUAL DINNER

The annual meeting of the Association was held Tuesday evening, February 8 at the Cosmopolitan Hotel in connection with the Rocky Mountain Horticultural Conference.

Eight directors were elected to serve until January 1952. All but two of the retiring directors were re-elected. The two new ones were Mrs. A. L. Barbour and Mrs. Frank McLister. Later in this meeting the directors retired and elected officers for the coming year. These included Mrs. John Evans to continue as President; Mrs. A. L. Barbour, secretary; L. C. Shoemaker, treasurer; and six vice presidents, Fred R. Johnson, Mrs. Robert M. Perry, S. R. DeBoer, Mrs. George H. Garrey, Mrs. J. Churchill Owen and Robert E. More.

The Green Thumb

A Bulletin of the

COLORADO FORESTRY AND HORTICULTURE
ASSOCIATION

Organized in 1884

GEORGE W. KELLY, Editor

MISS LORENE SMITH, Editorial and Adv. Asst.

MISS ALICE WOOD, Assistant Librarian

L. C. SHOEMAKER, Treasurer and Custodian

1355 Bannock St., Denver 4, Colorado

Phone TABor 3410

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

Published Monthly.

Sent free to all members of the Association.

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Vol. 6	March, 1949	No. 3
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Term Expiring in January, 1952

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Mrs. J. Churchill Owen.....	Home Gardener
Mrs. Robert M. Perry.....	Home Gardener

A number of treasures we did find on our plant excursion.

WOODY EXOTICS IN DENVER

A Backward and a Forward Look

By M. WALTER PESMAN

TWENTY years ago the voice of Denver was a choice monthly publication, called "Municipal Facts"; it told of many worth while and interesting things. On May of that year (1927) it had an article by the Park Superintendent, John L. Russell, on "Rare Trees and Shrubs in Denver's Parks and Parkways". Let us listen to what he considered worth mentioning; let us check on the particular trees and then go on from there. Still as rare as then are the two tulip trees at the drive juncture in the southeast corner of City Park. ("They will undoubtedly be a source of marvel, as well as pleasure, for the Western eyes are not used to their glory and even in more tropical climes, where man is accustomed to the opulence of na-

ture, the tulip tree calls forth exclamations of delight").

The tulip tree's close relative, the Katsura-Tree (*Cercidiphyllum japonicum*) is mentioned at the Lily Pond, together with European Firs, Veach's Silver Firs (probably Veitch Fir-*Abies Veitchii*), Japanese golden junipers, the "glove-shaped Japanese Juniper, seldom found anywhere in the occidental world", Irish and Swedish junipers, and the *Calycanthus*, sweet-scented shrub.

On close inspection we were able to rediscover of these, the Japanese golden junipers, the Irish and Swedish Junipers, and another Japanese Juniper which may have been the "glove-shaped one". Gone was the Katsura-Tree, gone the *Calycanthus*, and gone likewise the tenderly-protected *Rhododendron*, which used to eke out a bare existence for a number of years north of the lily-pond. We'll have to learn more in order to know how to grow these successfully.

A number of treasures we did find however on our—what shall I call it?—our funeral plant excursion? For one thing, we saw a clean-looking shrub with bright green bark, reminding one of Siberian Pea tree. But instead of leaves with many small leaflets, it had only three, like a clover leaf. And from the bunches of seed pods still hanging in abundance, there was no doubt but we had two fine specimens of the Golden-chain Tree (*Laburnum anagyroides*, or *L. vulgare*). What a wonderful show it must have made in early spring with its hanging flower trusses of golden sweet-pea blossoms. We have mighty few of them in Denver.

Cottonwood in City Park

Photo by Chas. J. Ott



Tracing Mr. Russell's trail of rare trees, we found his Austrian Pine, south of the superintendent's house, in full glory. It really has "towering height and sweeping foliage". East of the old greenhouse, — now torn down—, we did discover three unusual evergreens in a group, but instead of Cedars of Lebanon, they appear to be Yews (*Taxus* species); Lebanon Cedars have needles in bunches, these are in neat ranks.

I asked George Kelly, who was with me on this exploration: "How do you tell a White Oak from the English Oak?" We were looking at three fine specimens near the old pool adjoining Seventeenth Avenue.

"Look at the leaves and you'll find a couple of small flaps at their base, that is a give-away; then you'll notice the leaf is roundlobed like a white oak, but the bark smooth like a red oak".

In the same neighborhood, we found in a large group of Hercules Club, (*Aralia spinosa*, which itself is far from common), a lonesome Ginkgo Tree, the last link that ties present-day trees to the pre-historic ones. Altogether I dare say there are less than a dozen specimens in Colorado.

Some "rare" trees of 1927 are now fairly commonly cultivated. Nurseries carry Austrian Pines, many hawthorns, *Viburnums* and native cedars (*Juniperus scopulorum*, and *J. monosperum*) some oaks, and—above all, a great many varieties of French Lilacs, so justly praised by Mr. Russell. *Euonymus europaeus* and its brother *Euonymus*-es, such as Winged *Euonymus* (*E. alatus*) now brighten many a scene in fall. *Viburnum lantana*, the Wayfaring Tree, likewise is among the favorite fall stand-bys.

Pearlbush (*Exochorda grandiflora*), noted in 1927 at Forest and Seventeenth, can now be found at a few

other spots as well, such as South High entrance, and at 515 Race, the home of Arthur E. Johnson.

Xanthoceras sorbifolium, called Yellowhorn by Standardized Plant Names, and often called Chinese Chestnut by many of us who should know better, since that name is reserved for *Castanea mollissima*,—well, anyway, this lovely shrub that adorns the entrance to the City Park Museum, and that catches the eye in Washington Park near Downing and Arizona,—it's the mystery shrub of the nursery trade. It's beautiful, it's hardy, it has no diseases or insect pests, as far as known,—and yet, it's not to be had.

I wrote to a dozen or more of the best known nurserymen in the country; "would they please let me know where *Xanthoceras* can be had?" And here is the result. Not a blessed one grows it, lists it or knows where it can be had. A few were kind enough to suggest other possible growers, again without result.

The only hope left is the so-called Manning's Plant Buyers' Guide, issued by the Massachusetts Horticul-

Horsechestnut in City Park





Kentucky Coffeetree in City Park

tural Society. Evidently the standard nurseries have dropped *Xanthoceras sorbifolium*.

Does that mean that Yellowhorn is on the way out, and that Colorado is the sanctuary where it can still be found, outside of botanical gardens? (There is, or was, a specimen on the Courthouse grounds in Sterling). Who knows?

Before leaving John Russell's random notes, we should express condolence for the passing of the Japanese cherries he mentions on the north side of Cherry Creek. It was a noble idea, to make Cherry Creek once more live up to its name, just as the town of Pinyon had its self-respect restored by a sizeable roadside planting a number of years back. But in the case of Japanese cherries, it was a fanciful hope: Cherry Creek will never vie with the Potomac from present indications. Another attempt was made in Washington Park, again without success.

English Oak in City Park



And now let us strike out on our own in a few notes on the situation in 1948. "Trail and Timberline", the monthly publication of the Colorado Mountain Club, gave a list in June 1931 "In Quest of the Unusual among Denver's Tree". It will serve as a point of departure. Where can one go in search for such trees now?

Our City Parks are still choice hunting grounds for woody exotics. Just as a teaser one might look for European Alder and European Maple (*Acer pseudoplatanus*) in Highland Park,—Japanese Varnish Tree, Ohio Buckeye and White Fir in Washington Park; — Yellowwood, Kentucky Coffee Tree, Chinese Catalpa, and Bladdernut in Cheeseman Park,—Japanese Pagoda tree in the Sunken Gardens,—and for Scarlet Oak, different species of Hawthorn and a beautiful Walnut Grove in City Park.

Parkways are pleasant rambling spots for Euonymus, larches, pines and spruces. A glorious grove of White Pine is on Downing Street Parkway near Third Avenue. Marion Street Parkway is known for Hackberry, Sycamore and Oaks, as well as for its being part of the Denver Parks Flower Trail, described in The Green Thumb of September 1947.

The City Nursery on South Logan Street, south of Iliff Ave. has a number of unusual trees; every plant lover ought to visit it frequently, as long as we have not yet embarked upon our Rocky Mountain Botanical Garden. The old City Nursery, at Eighth and Elizabeth had a fine collection of *Arborvitae*, still on display along Eighth Avenue.

Convenient tree collections are found on many of our schoolgrounds; South High and East High particularly are very rich showgrounds of many, many trees and shrubs. Skinner and Lake Junior Highschool grounds have a number of fine specimens of many types, as does Byers

Junior High, which was the old home of the tree lover-pioneer William N. Byers. As time goes on, these tree collections will be appreciated more and more, since they give our youth a chance to become acquainted with the outdoors.

The Capitol Grounds, unlike the school grounds, have had a good press agent for a long time. The fact that trees on them are labeled, has been a big help. There is a good variety and by this time the individual trees have reached a good age to show character of their later years. Even the beech has managed to continue living.

"My aunt has a hickory and a Japanese Oysternutt tree in her yard", remarks little Billy at this point. Which reminds me that this article cannot possibly do justice to all the rare trees in private homes and stay within a reasonable length. The list in Trail and Timberline will give a hint and a beginning, but some day "The Green Thumb" should publish as complete a compilation as can be brought together.

That should include the rare trees and shrubs that have gradually been accumulated at Fairmount Cemetery and Crown Hill Memorial Park. (And perhaps at other cemeteries in the State).

All in all it is a formidable list that can be compiled, but that is a job for more than one person. Won't you all help along in reporting to "Horticulture House" all the unusual trees and shrubs you have met in your rambling?

Even if we cannot grow oleanders, azaleas, laurels and magnolias, and even rhododendrons, — there is no need being disconsolate. Our list is fairly large and some of them are very striking trees and shrubs. As time goes on we will find new introductions that are easily grown here; moreover we'll breed new varieties, hardy

in our climate, resistant to both dry air and alkaline soils.

SPRING

BY E. L. SIMPSON

See how this bud, this breath of life
That lay so still along the bough
When vital rays were thin and slant,
Does now respond to higher rays,
To warmer breaths from dawn to
dark;

Does feel its still creators call
And reaches out to do his will;
Give grace to earth, to air, to sky.

Sycamore in City Park

Photo by Chas. J. O.



MY EXPERIENCES WITH ROSES

MAURICE N. MARSHALL

IT is easy to understand why a person buying and planting roses for the first time is confused as to what varieties to buy, where to plant them and how to care for them. Every garden magazine and every nursery catalog annually carry many articles on the subject, each differing from the other in many ways due to the varying experiences of the authors and the localities in which these experiences have taken place.

Obviously, when you read this article you will be reading just another experience. But let me preface my remarks by saying that my experiences have taken place in the Central West

under conditions familiar to every reader in this area. I have believed but very little of the bugaboo on extensive and detailed soil preparation and have not cluttered up my premises with a multitude of sprays and dusts, many of which overlap in their function. I have followed a straightforward course of what I thought looked sound and practical and have refused to accept blindly the recommendations of persons who are a thousand miles away unless it is obvious that our conditions locally would submit favorably to these recommendations. I have set the following down in outline form for quicker reference.

VARIETIES TO SELECT FROM

Thirty-five Good Non-patented Hybrid Teas

RED	Picture	WHITE
Ami Quinard	Dame Edith Helen	Caledonia
Grenoble	Editor McFarland	Kaiserin
E. G. Hill	Mrs. Chas. Bell	Snowbird
Margaret McGredy	Radiance	TWO-TONE
Etoile de Hollande	The Doctor	Hinrich Gaede
Red Radiance	YELLOW	Talisman
Glowing Carmine	Golden Rapture	Edith Nellie Perkins
Poinsettia	Mrs. E. P. Thom	Betty Uprichard
Christopher Stone	Golden Dawn	Condesa de Sastago
PINK	Soeur Therese	Mme. Joseph Perraud
Briarcliff	Joanna Hill	Duquesa de Penaranda
Pink Dawn	Mrs. Pierre S. Dupont	Mrs. Sam McGredy
		President Herbert Hoover

Twenty Good Patented Hybrid Teas

Show Girl	Katherine T. Marshall	San Fernando
California	Lowell Thomas	Peace
Charlotte Armstrong	Taffeta	Rubaiyat
Crimson Glory	Mme. Chiang-Kai-Shek	Will Rogers
Eclipse	Mary Margaret McBride	Nocturne
Heart's Desire	Mirandy	Countess Vandal
Horace McFarland		Grand Duchess Charlotte

Six Good Non-patented Floribundas

Improved Lafayette	Gruss an Aachen	Ellen Poulsen
Dagmar Spath	Mrs. R. M. Finch	Eutin

Six Good Patented Floribundas

World's Fair	Goldilocks	Floradora
Permanent Wave	Betty Prior	Pinkie (Haven't tested it yet)

Six Good Non-patented Climbers

Paul's Scarlet
Crimson Rambler

American Pillar
Excelsa

Dorothy Perkins
American Beauty

Two Good Patented Climbers

New Dawn

Doubloon

Five Good Hybrid Perpetual

Frau Karl Druschki
General Jack

Mrs. John Laing
J. B. Clark

Paul Neyron

Eight Good Miscellaneous Shrub Roses

Grootendorst
Amelia Gravereaux
Hansa

Austrian Copper
Redleaf Rose
Hugonis

Harison Yellow
The Fairy

When and Where to Buy:

Place your order early with any leading local nursery who lists the varieties you desire. Buy the best and request spring delivery.

Where to Plant:

Plant your roses out and away from medium and large trees, in the sun. Plenty of ventilation is of utmost importance. Roses (except the miscellaneous shrub roses) don't like to be planted among other plants. You will have better luck with your Hybrid Teas if you don't even hug areas adjacent to shrub and flower borders. Use them in beds of many together and you will derive much pleasure from them. Space them two feet apart.

How to Plant:

The soil should be ordinary good productive garden soil. Dig the hole large enough to accommodate the root system without crowding. Remove roots of excessive length, also bruised and broken roots. Spread the roots slightly and adjust the height so that the bud union will be slightly below the natural ground level. Work pulverized soil carefully around and between the roots so that no air spaces are left. Fill in soil to cover roots and firm. Fill and refill the hole with water and allow to drain away before

filling in with the remainder of the soil. Mound soil at least six inches high around stems for protection until growth starts, then remove carefully. This is very important.

Summer Care:

After growth starts, spraying or dusting should begin and continue, at weekly intervals, throughout the entire season. (This applies most particularly to the Hybrid Tea Roses.) I prefer dust—it is easier to use. Any nationally advertised rose dust will probably do the job. It should be a fungicide, insecticide and aphid control, all made up in one dust. This usually means a combination of dusting sulphur, arsenate of lead and either pyrethrum or rotenone. Recent dusts even contain a small percentage of chlor-dane. Watering, preferably by irrigation, should be thorough and rather frequent. Cultivation should be frequent. Fertilization should be about twice a season—pulverized manure is good. It can be hoed in at the close of the June crop and again in late fall. Cut your roses and enjoy them in the house as well as on the bush. Old blooms should always be removed. Cut the stems down at least to just above the first five leaflet leaves. Growth from the buds in the axis of these leaflets is strong and will produce flowers.

Winter Protection:

The Rugosas and miscellancous shrub roses require no winter protection. Climbers should have only very moderate protection (something to shade the stems a little) or no protection at all. Hybrid Teas and Floribundas should be protected with a mound of dirt placed about the plant to a height of six or seven inches. This should be done in December (usually about mid-December or just as late as one can wait before the ground freezes up solid.) After Christmas, a supplemental covering of evergreen boughs is also advisable. This shades these mounds and holds the frost in. In the spring, about April 1st, remove the boughs; then during the next week gradually lower the mounds and prune the plants back to eight inches or even lower if the live wood doesn't extend to eight inches above the ground. Climbers, Rugosas and shrub roses require no spring cutting back. Only occasional corrective pruning is all that they require.

**HEDGES**

By KATHLEEN MARRIAGE

Colorado Springs, Colo.

"There ain't nuthin' wrong with hedges, it's the way they're cut." Well spoken, Pete, in spite of grammar. Hedges that are cut so that the top is imperceptibly narrower than the base get enough light, moisture and air usually to keep them dense and good to the ground, no bare stem business. Growth near the top is naturally more active; in shearing it must be reduced so as to prevent it shading the lower part and acting as an umbrella keeping moisture and sunshine from the base. A wide topped hedge is always a leggy one with unsightly gaps near the base.

TREES AND CIVILIZATION

By E. SAM HEMMING

Reprinted from American Nurseryman

My thesis is that the presence, nurture, abuse and destruction of the forests followed a definite pattern in the rise and fall of civilizations. History indicates that forests have been one of the three key features of civilization. These three features are, first, an environmental stimulus strong enough to make people aggressive enough to struggle for a living; second, the development of a permanent agriculture and the use of the necessary six inches of topsoil to permit the parallel development of the arts and the sciences through the use of surplus food and energy, and third, the maintenance of the forests which keep the six inches of topsoil producing. The major and minor civilizations all seem to fit into this pattern, either directly or indirectly.

In America we are having our warnings not only in the dust bowl but in the abandoned farms of New England and the Finger lake region, the eroded cotton farms of the Piedmont, the corn lands of the middle west, the disastrous floods of the east or the droughts and underground water shortages of California.

We are becoming conscious of our troubles, and our civilization is certainly in a turmoil. Perhaps we can save it, but it will surely involve the retention of our forests in proper balance. Trees and forests are not luxuries in any sense; in fact, their importance extends beyond primary industrial use. The product the nurserymen grow is really one of the essentials to the development and continuation of civilization.



Send in good pictures that might be used to illustrate stories.

The 1948 Report of Lyle F. Watts, Chief of the United States Forest Service

The annual report of the Chief of the U. S. Forest Service is a lengthy description of the administrative accomplishments of his bureau for a given year. To the average layman it looks rather formidable, and, unless one is especially interested in the subject it is usually glanced at and laid aside as a task too great for the moment. That is regrettable, as it is then too often neglected and forgotten. Once in hand, the report should be read thoroughly, for it is always worth the time needed to read and digest it. As the *Denver Post* recently stated in an editorial headed "Must Reading for All," "it is a story which far too few Americans have ever heard."

And for some reason the 1948 report does seem breezier, and easier to read. Probably because it leads off with a snappy historical review of "The Service," which instantly catches the reader's attention. Now celebrating its 50th year as an administrative unit, the Reserve Service was organized in 1898 to protect the timber on the Reserves from fire and insects, and it and other natural resources from over-zealous and unrestrained use by the local citizenry. Development of a forester and ranger personnel to cope with the fast-spreading national forest system has been a gigantic task. In 1905, this force became the present Forest Service and in 1907 the reserves became national forests.

Managing the national forests in the best interests of their owners, the people of the United States, has been and ever will be the foremost aim of the Forest Service. And, according to the report, Mr. Watts is using the same policy yardstick "the greatest good of the greatest number in the

long run," which Secretary of Agriculture, James Wilson, handed to Gifford Pinchot, the first chief, in 1905. The multiple-use plan of managing the natural resources gives each resource due consideration and each user of the several resources equal opportunity. Timber, forage, water, wildlife, recreation, and all minor resources are handled jointly without undue friction between users of any one resource.

Of special importance in new developments is the establishment of a National Forest Board of Review, which will assist the Secretary in the solution of problems arising in connection with the use of the national forests by the public and in appeals over the decisions of the Chief of the Forest Service.

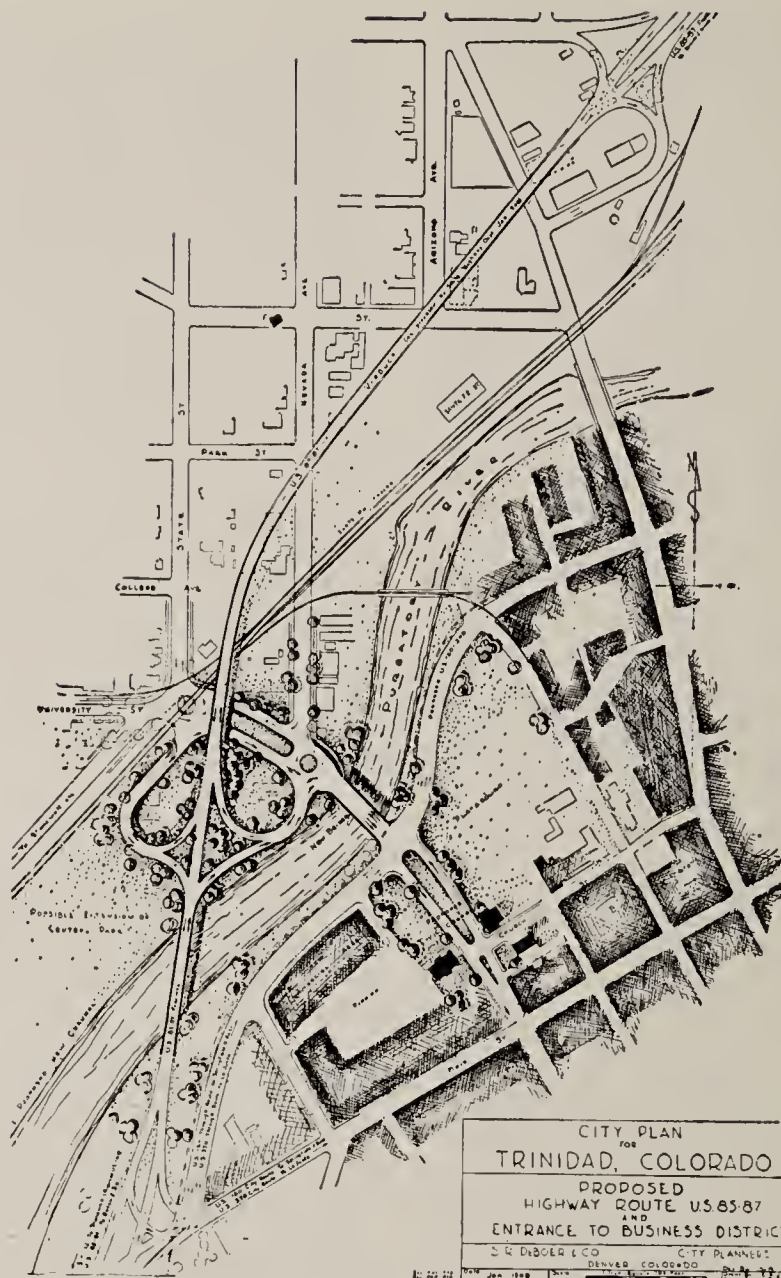


What is a tree and what is a shrub—what's the difference? If the plant is over ten feet tall, with a single trunk or stem, from which branches extend at some distance from the ground—that is a tree. The tree's single trunk distinguishes it from a shrub, which may have several stems from the same root. To supplement these notes, see Sargeant's "Manual"; Mathew's "Field-book of American Trees"; McFarland's "Getting Acquainted with the Trees"—others, too, on the shelves at Horticulture House.



If you think it not important to learn the correct botanical names of plants, listen to this—a Bachelor-button may be the Blue Cornflower, the Double Buttercup, the Red Cam-pion, the Globe Amaranth or an English Daisy; Bluebells may be Scillas, Grape Hyacinths or Mertensia; Cow-slip is used with equal facility for a Shootingstar, a Marsh Marigold or a Primrose.

HELEN FOWLER.



NEW CITY ENTRANCE FOR TRINIDAD

One of the interesting items in the "DeBoer" city plan for Trinidad is the proposal for an attractive city entrance. Like many other cities, Trinidad suffers from an inefficient and unattractive approach to its business district. The present line along Commercial Street and Main Street is one of the worst bottlenecks in the highway system of Colorado.

The new plan will create a major entrance on Animas Street, taking off

from the elevated U. S. 85 Highway and over a new bridge on this street. The plan proposes to improve the park area around the City Hall and Library and turn it into a small civic center. The approaches to the highway from the bridge would also be park-like. Other connections between the highway and business district are designed to lead to Commercial Street and the end of Main Street.

The new highway will be located in such a way that the business district is in full view and visitors can easily go into it from the highway

over the new bridge. Even those who pass by will get a distant view of the district and a foreground view of the Civic Center and the parked banks of the Purgatory River, the new bridge, the public building group and the Trinity Church amongst the business blocks.

Very few cities have the opportunity to build such an attractive entrance. Usually highway lines have to bypass the business district and connections between the two are along crowded streets. Trinidad has the opportunity to get this attractive arrangement as part of its highway program.

NOTES ON THE GROWING OF GRAPES IN DENVER

From a Talk by ROBERT E. EWALT at Horticulture House, Nov. 26, 1948

Portland is one of the best white kinds. Has good foliage and good fruit. It ripens the latter part of August, fully a month earlier than Concord.

Ontario, white, is not good for Denver area. Beta, a hybrid of Concord and wild grapes is not worthwhile where better grapes can be grown. (In many parts of the state it is the only grape which will bear fruit consistently.—Ed.)

Seneca is a good European wine-type grape which will keep up to the first of the year in storage and not shatter. The Golden Muscat or other long-maturing grapes should not be planted in the Denver area.

The Interlocken seedless grape originated by A. B. Stout of the N. Y. Botanical Garden and introduced by the Fruit Testing Association in Geneva, N. Y., is worthy of trial here. Concord is one of the poorest of the old grapes.

In pruning grape vines, they should

be trimmed longer than most of the agricultural bulletins indicate. It has been found that the fifth to the ninth nodes on the new growth of last year will produce the most grapes. Various methods of pruning and arranging the stems have been developed, but it is usually best to keep only one main stem from the ground.

NATIVE SHRUBS

By GEORGE KROH

Remarks Made at 1948 Rocky Mountain Horticultural Conference

Of all our native shrubs I would rate the Colorado Dogwood as Number 1 from the standpoint of appearance, hardiness, habit of growth and color of stems. It remains within bounds as a medium height shrub which cannot be done with some of the Eastern types.

Then, with some qualifications, I would consider the Thimbleberry as about next. It has some weaknesses; attracts red spiders late in the summer, but if that fact is realized and a reasonable amount of caution taken by dusting and spraying, it can be kept clean. When it blossoms in June its beautiful single white flower is quite an event.

An extremely useful native shrub is the Dwarf Sumac. It fits very nicely into group plans, grows to medium height, and the color is very prominent in fall.

Another plant that is very useful in some situations is the Bush Cinquefoil. In winter the plant is rather dull, but the small yellow rose-like flowers are very attractive all summer.

Do you have ideas on the growing of spinach or snapdragon? Someone else might like to know about your experiences with these things in Colorado.

STRAWBERRIES

Notes from a talk given by Martin R. Keul at Horticulture House, Nov. 26, 1948

Of the small fruits and berries, the one that lends itself best to small home grounds is the strawberry. It is easily grown, provided one gives it the care it needs.

Strawberries need a sunny spot; they grow in any good garden soil, but prefer sandy or gravelly loam which leans somewhat toward the acid side. Do not water too heavily, especially in heavy, level soil. In well drained soil they like frequent watering, especially when fruiting.

For best results plant in April, or earlier, if the season is favorable. Prepare the ground the fall before and have it ready for spring planting. Plant carefully with the crown just at the ground level, for the plant will rot if placed too deep, and dry out if too high. Spread the roots out carefully and press into the soil, and water thoroughly.

To get robust plants the first crop of flowers should be pinched off till early summer. If plants are set out in spring they should bear fruit in the fall. Use only new plants to set out. Roots of new plants are yellow while old plants have black roots.

Strawberries are successfully grown in three ways: the single hill method, single hedge row and matted row. In the single hill row set plants about a foot apart and keep all side runners pinched off. In the single hedge row allow runners to set on either side of the mother plant at spaces of about seven inches. When the mother plant has produced for a year take it out and allow the new plants to develop. This system may be continued indefinitely. In the matted row the plants are allowed to form naturally, and the whole bed is abandoned after it has fruited a year or so and a new bed

started with young plants. For best results avoid crowding of plants.

Strawberry plants have a shallow root system, therefore do not cultivate too close to the plant or too deeply, depending on the type of soil and how much it bakes. Use a narrow hoe or soil-stirrer. The plant likes mulching. Well dried grass clippings or straw may be used. This keeps down the weeds, holds in the moisture, keeps the berries off the ground and eliminates cultivating.

Strawberries like a fertilizer of about 4-12-4 composition at the rate of about 2-3 pounds per hundred square feet, or something like 2 pounds of Vigoro and 1 pound of superphosphate twice a year. Sprinkle the fertilizer around the plants and work it into the soil.

In autumn remove all old leaves and after a good freeze cover with 2-3 inches of straw. For a late fall crop of berries cover the bed with a roll of flexiglass. It is well to move the bed to a new location every two years.

There are many single crop varieties. For most home gardens however, the everbearing are the best. Old, but still good, are the Gem and Mastadon. New varieties are the Streamliner and the Twentieth Century. With these varieties one may have nice big berries through October.



O Lord provide us a new tree; a beautiful tree. A stately tree. A tree that will retain its green foliage throughout the long winter months. A hardy tree that will thrive without care after planting. A tree that will survive the abuse of all the kids and dogs of the neighborhood. A tree the like of which has never been seen. A tree that will please our most discriminating customers and one for which they will gladly pay an honest price.

For such a tree, O Lord, we will praise thee forever and ever. Amen.

TROLLIUS EUROPAEUS

By KATHLEEN MARRIAGE

Colorado Springs, Colo.

Trollius is a plant of many merits. The european species, before hybridizers took to improving(?) it, is by all odds the best for the perennial garden. Its big soft silky balls of yellow or orange are a delight in May and early June; of adequate carrying quality in the garden and excellent as cut flowers. Then as other perennials sag into September and October along it comes again with a trickle of most welcome flowers—and they keep almost as long as chysanthemums.

Trollius makes sturdy dependable plants better when divided every two or three years. Some people find that they sulk, refusing to grow or to bloom. This may be that conditions are not to their liking. I often think of Mrs. Egon Petri's delight when she saw them in my garden. They reminded her of her beloved Poland. There they grow in rich very moist valleys. If we'll keep this in mind and give them good loam rich in humus and generously watered they'll respond cheerfully.

Seed germinates well but rather slowly and irregularly. One way to boost it along is to mix the seed with 2 or 3 tablespoons of sand tied in a muslin bag. Dip it in a quart of boiling water and keep the water hot—not actually boiling—for five to ten minutes, open the bag and sow the seed and sand mixture taking care to keep it mixed while sowing. Cover lightly. Such slow seeds are more easily kept from drying when sown in vermiculite than in soil. It retains moisture doggedly and is free from damping-off suggestions.

All members of the Association are privileged to take out books from the library for short periods.

A CHECK LIST FOR LANDSCAPE PLANNING

Shade—For the house on the southwest. For the garden area. Trees, shrubs and vines.

Background—Behind the house and garden. Trees, tall shrubs, trellises

Foreground—In front of the house. In center of garden. Lawns, gravel, walks, ground covers, water.

Frame Views—In and out. Mountains, parks, other good gardens. Trees, tall shrubs, evergreens.

Hide Views—Ashpits, weed patches, ugly buildings, windows. Screens of shrubs, trellises with vines, hedges.

Soften Severe Lines—Foundation, property lines, drives. Foundation plantings, shrub and flower borders.

Add Beauty—All around the house. Green trees, shrubs, perennials, annuals, and bulbs.

Utility—Walks, drives, clothes lines, ashpits, garbage. Planned for efficient use with no waste space.

Year-round Color—In trees, shrubs, and evergreens. By colored barks, fall color, berries.

Windbreaks—On northwest side. Evergreens, tall shrubs, trees, hedges.

Attract Birds—For their beauty, interest, and control of insects. Shrubs and trees with edible berries.

Mark Boundaries—Of property. Of garden or service area. Hedges, fences, shrub borders.

Seclusion—In pleasure garden and by windows. Shrub screens, lattice, vines and tall fences.

Hobbies—For every member of the family. Rose and flower gardens, pools, rockeries, seats, platforms, shelters.

If you have benefited from this Association you should tell your neighbors about it.



THE NEFFS' GARDEN FACE LIFT

CLAIRE
Lapola

YOUR garden is not inviting, not restful; the family does not enjoy spending its leisure hours there? It would cost too much to fix it up, make it liveable, more than such an investment in the future would seem to warrant? Perhaps, it only needs its face lifted.

Such was the case of the Neffs' garden in Colorado Springs. Those of us who recall with pleasant memories the late Mrs. J. Floyd Neff, former President of the State Federation of Garden Clubs, remember, too, how charmingly she used to tell the story of the evolution of this garden from an old chicken run to a consistent prize winner in garden competitions.

The Neffs had a real and deep love for plants and flowers and the knack of growing them successfully. Their soil was excellent for the production of perfect blooms, and in the beginning all available space was devoted to setting out any and all plants with little regard to principles of design. Like Topsy, the garden "jes' grew".

Then came the day when they first entered their garden in the city-wide competitions, including the landscape class. At the time there were long beds, square beds, round beds, as in Plate I. Dividing these beds were gravel paths, offshoots from an unbending concrete walk that led from the kitchen door and along the driveway and garage. To add variety, the architectural features included a per-

gola, a pole supporting a birdhouse, a rustic birdbath. A workshop, the ashpit and garage stood naked, but not quite unashamed. A weathered board fence, slightly more than waist high surrounded the back yard.

The judges came, they admired the size and quality of the flowers, and awarded the Neffs one or two minor prizes on certain well grown blooms exhibited as cut flowers. But their dream of competing successfully for the high honor of the sweepstakes prize was doomed to disappointment.



GARDEN HAD ITS LIFTED

NORTON
olo.

Instead of thrusting aside the whole fair with the assumed consolation, "that everybody can't win", they faced their problem squarely and honestly. When the prize winners were announced, they visited these gardens. During the next several weeks their increasing interest led them into scores of gardens considered above average. They took photographs of the good points in these gardens. They bought and borrowed books dealing with garden design. Each member of the family studied analytically to determine



how charming effects were achieved in gardens classed as "good". In earnest discussion they pooled their information and derived finally the knowledge of wherein their own garden failed to measure up to standards.

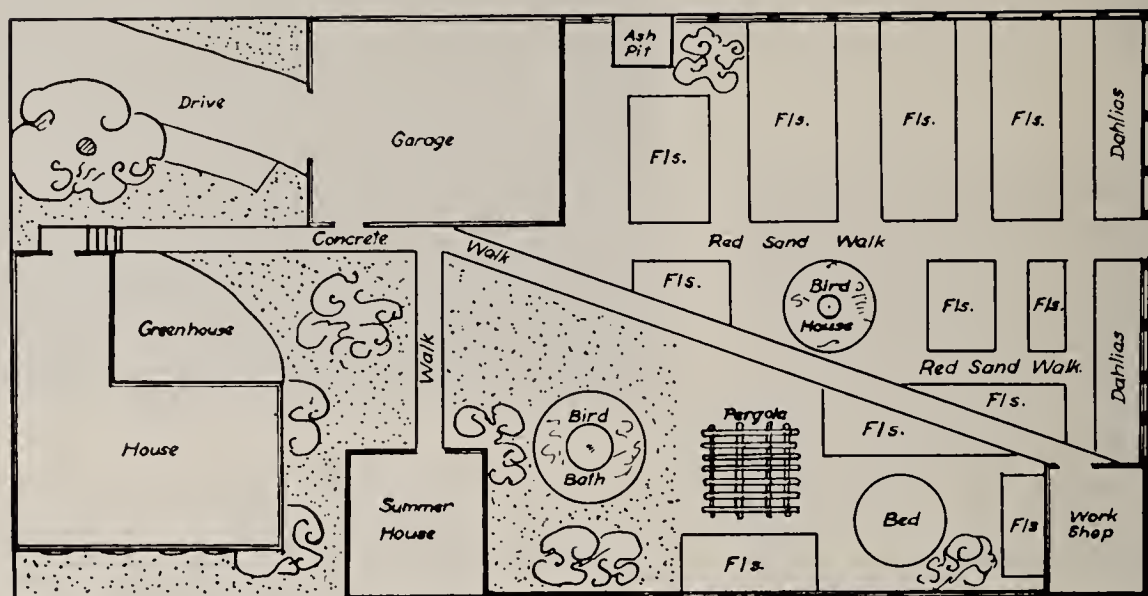
They saw that their garden was not a place to relax, and failed miserably as a complement to finer home living. Without appreciation of lines and the balance of lines, they had broken up their space into a series of beds without coordination. They had no axis from which to work. Their garden existed solely for the plants, and not the plants for the garden effect.

No attempt had been made to secure harmony of color or of texture. Even the gravel paths detracted from rather than contributed to the enrichment of the flowers. Structures on neighboring lots intruded into what should have been their seclusion, since they had not screened out the objectionable nor enframed the desirable into their own composition.

After months of such careful and intensive study the Neffs saw the means whereby they could convert their sad hodge-podge into a garden worthy of their labors and in which they could take pride. Nothing but a complete overhauling, face-lifting, would bring about this change.

They tore up their yard from street to alley, and from boundary line to



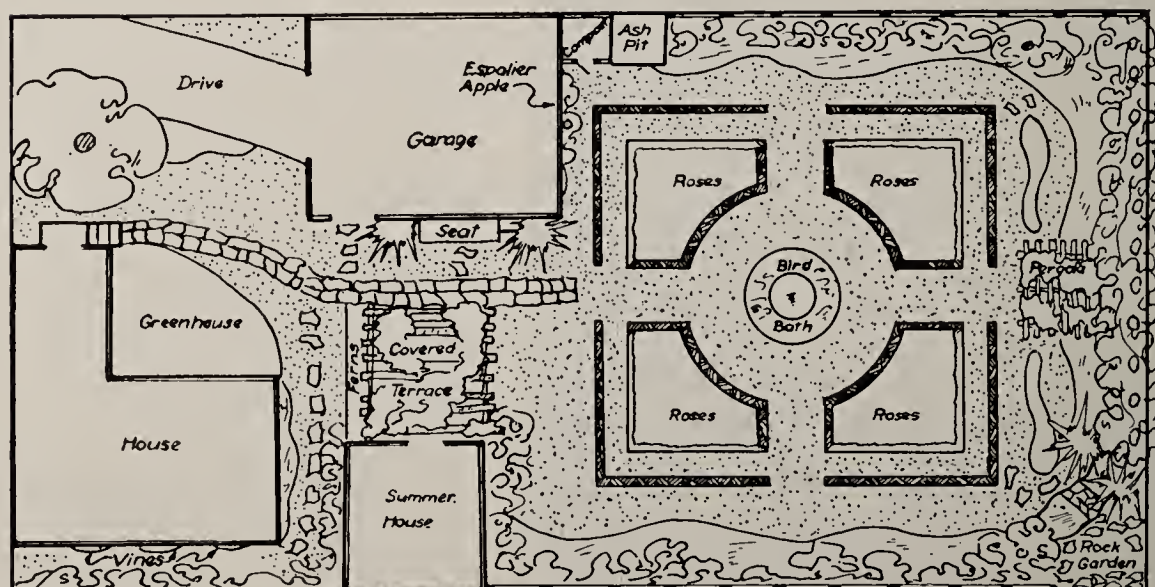


boundary line. By using the materials they had, by offers from enthusiastic friends, and by purchase of needed trees and shrubbery and the growing of seeds, they revamped their garden with but little expense.

Although the size of the lot with which they had to work was only 45 x 150 feet, and that space devoted to flowers approximately 45 x 45 feet square, they created an atmosphere of spaciousness, Plate II. The effect was gained by keeping the plantings in scale, by balancing mass

and line, by tying in the buildings with appropriate plantings. An expanse of lawn, turf paths and formal laying out of beds and borders contributed.

The old board fence was replaced with a boundary fence of pleasing proportions, painted creamy-white and banked with shrubbery. Poplars screened out the view across the alley. The workshop was torn down and the space converted to a rock garden and pool. Vines hid the neighbor's garage. A gracefully curving flagstone walk





replaced the old concrete one. The same pergola was moved to the rear of the garden and balanced with surrounding borders. The right place for the birdbath was found.

Was this investment in time, labor and money a profitable one? The Neffs' combined answer was always an emphatic affirmative. Only a few months after rebuilding their garden they won the coveted sweepstakes prize, as well as a number of smaller prizes awarded on well grown plants and various features of the garden. They continued to win the sweepstakes until this class was discontinued from the competition schedule. But above all else, the new meaning of gardening, the enjoyment and satisfaction of possessing a well planned garden in which they could find rest and beauty, was the reward of these gardeners.

GIFTS OF LOVE

BY MRS. IRA ULLOM

God gave a song to the stately pine
That guards our mountain high;
A melody to the singing bird
That wings our clear blue sky.
He gave us peace in the quiet lake,
Rare beauty in the stars;
The face of Nature is God's face
In this wonderful world of ours.
His handiwork are the mountains old,
His footsteps are found by the sea,
His smile is in the sunset gold—
He loved the world and me.

MY GARDEN

BY MRS. IRA ULLOM

God kissed my little garden
with His sunshine and His showers;
His voice I heard in the Song of the
bird
His smile I saw in the flowers.



BUILDING A ROCK GARDEN

By GEO. A. AMIDON

AMONG all the interesting features connected with landscaping, perhaps the most fascinating is the building of a rock garden. My idea of how a rock garden should be built is at variance with the majority of authorities on the subject so I may well expect a lot of "Hoots and howls" from those who really know how. But here goes anyhow.

The following is a quotation from one such authority; "The beginner's commonest faults in constructing a rock garden are a tendency to place stones on end in such a way that never occurs in nature".

I take exception to the phrase, "never occurs in nature." Sometimes nature does stand rocks on end. You'll find them that way in Bryce Canyon, Utah, in The Garden of The Gods, and almost on end in our own Red Rocks Park, west of Denver. These

unusual ways in which nature places rocks is what causes people to stand in awe and wonder and return to visit time and time again.

Of course the beginner in rock garden construction cannot obtain or use rocks that compare in size to those just mentioned but I believe it is these exceptional rock formations and placings lingering in their minds that makes them try to imitate these beautiful and startling vagaries of nature. What a disappointing letdown it is to be told that, "It just isn't being done in polite society."

The beginner goes on reading and finds that, "The larger part of rocks used in rock garden construction should be buried below the surface of the ground", so, reluctantly directions are followed, a hole is dug into which their pebble is placed where it quickly and quietly drops from sight forever.

At best man-made rock gardens are but a tiny miniature of those found in nature. The average individual is limited indeed as to the size of rocks they are able to use and, to a lesser degree even professionals with power equipment can never expect to even approximate the mighty rock gardens of nature, so, everyone must of necessity, show each rock up to the best possible advantage.

In order to do this a study of rock formations that particularly attract the attention is very essential. Knowing that an upheaval in nature usually leans rocks in one general direction is helpful to amateurs and professional alike. Sometimes I wonder if everyone isn't pretty much of an amateur when it comes to rock garden construction. My quarrel with many of the supposed to be experts is their insistence that "rocks must be laid down flat" where, even small plants quickly cover them. The only time they show up thereafter is when you bang into them with a hoe, and lose your temper, your love for gardening and the edge off your hoe.

Using each rock to the best advantage can best be done by the method of trial and error repeated until the desired result is obtained. Experience greatly reduces the number of trials necessary. Placing rocks to form natural looking pockets that will hold the soil on inclines is somewhat like terracing but too much regularity should be avoided. Cracks between rocks where soil may be washed out may be partly stopped with smaller rocks and completely stopped by the use of trailing plants with fibrous roots. Different plants have different soil requirements so each pocket must be filled with the proper soil in order to obtain the best results.

A sunken rock garden in connection with an elevated bank is somewhat out of the ordinary and is easily

constructed by excavating a portion of the yard below the general level. The excess soil can be used to build the hillsides and between the hills a tinkling brook may easily be created by concealed piping to which the garden hose may be attached. A pool with overhanging rock ledges so constructed that it is larger at the bottom than at the top gives gold fishes and lilies a year around home that may be kept from freezing by a light covering of boards covered with either leaves or straw. This type of pool has a naturalistic appearance far removed from the saucer shaped pools so commonly used.

By the use of an overflow pipe at the end nearest the sunken portion of the rock garden the excess water from the brook (which, by the way, may be cascaded into the pool in a series of waterfalls) may be used to form a bog and give moisture to bog and shade plants. Steps leading down and thru this sunken part of the rock garden not only adds to it's attractiveness but also makes it easier to reach and care for the various plant pockets.

With the combination of hillsides, valleys, pool and bog it is possible to have a wide variety of extremely interesting rock garden plants that will repay you for your care with beauty and fragrance from early spring to the freezing nights of late autumn, and, if the rocks are selected carefully and are used skillfully, add beauty and interest even during the winter months.

A rock garden arranged as I have suggested is equally adaptable to the average two lot yard and to the country estate, the difference being in the size, and amount of money used.

On country estates where a greater amount of space may be used this plan may be enlarged to become a rocky dell surrounded by a thicket where a rippling brook, fed by a cir-

culating pump would make music as it made a series of plunges to a naturalistic lake. A leveled off space covered with green lawn can provide ample room for chaise lounge, table and chairs. Trees can be so planted that a choice of sunshine or shade may be made at anytime during the day. In short "The mountains can be brought to Mohammed."

In the average back yard it can be a secluded nook where, dressed in old clothes or swimming trunks, the cares of office, of customer complaints, of the daily grind, may be forgotten, as with trowel in hand Mr. Average Man becomes fascinated with the wonders of nature. Yes, and how refreshing the sleep that comes so surely and gently after a day spent out of doors in the pure air and sunshine amid the beautiful rocks and flowers that God has so graciously given for our enjoyment.

Are you missing some of the pleasures to which you are entitled? I'm sure you are if you don't have a rock garden. It has been said that anticipation is as great a pleasure as realization. All these pleasures may be yours, dreaming, planning, anticipating and finally realizing the thrill of having YOUR OWN ROCK GARDEN.



In growing alpenes or other tiny plants at levels below the tree-line, watch out in autumn that several large dry leaves do not blow on top of them for a winter stay. Cut off from light and air, wet from the leaf cover, the poor alpine soon decays. The small Arenarias, Dianthus, or Diapensia, are not accustomed to sleeping under a big dead leaf. So, in the season of foliage falling from our trees, the little plants must be watched weekly lest they smother to death.

STEPHEN F. HAMBLIN,
Lexington (Mass.) Botanic Garden.

ROCKY MOUNTAIN HORTICULTURE CONFERENCE

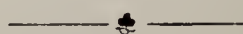
As this issue of the Green Thumb goes to press we are closing up the Second Annual Rocky Mountain Horticultural Conference. All who attended agreed that it was a very profitable meeting. The speakers were equal to those heard at the national meetings. The addition of commercial exhibits was an extra attraction, and the small fee charged these people enabled us to pay the expenses of the conference with a small surplus left to start the next year's program.

As soon as possible the talks will all be published so that more people may benefit from them. Whether this will take the form of a special edition or will be used in the Green Thumb throughout the year will be determined later.

Much of the success of this conference is due to the fine volunteer help in the preparation and execution of plans. The planning committee had been working for about 10 months arranging the program, many people volunteered to help with such chores as registration and arranging exhibits, and the active committee worked many days previous to and during the conference to make it a success. Special credit is due Earl Sinnamon and Paul Morrow for arranging the educational exhibits and demonstrations, to Miss Lorene Smith for handling arrangements with the hotel and finances and to John Swingle for lining up the commercial exhibits.

Around 300 people attended the day sessions and 175 the annual dinner.

Plans are now being made for a bigger and better conference in 1950.



Let us know if you like the suggestions on the back cover.

PEONIES

Report of a talk given by

Wm. Lucking, Jr. at Horticulture House,
November 26, 1948

Peonies are a touchy plant. They need deep soil and prefer a location away from the house or competing shrubs. They should be planted about two inches below the surface of the ground. They need plenty of water at blooming time. Once established they like to be left alone as they improve with age. They have practically no insect pests or diseases. When peonies do not bloom the most practical thing to do is dig them up, throw them away and start with new plants.

If blooms are cut, at least two lower leaves should be left to give the plant a chance to ripen up the next year's eye.

Some of the old varieties are still among the best. These include Festiva maxima, white; Baroness Schroeder, shell pink to white; Mme. (Jules) Calot; shell pink to white; Mme. (Jules) Dessert, an early white which is susceptible to frosting of the pilot buds; Edulis Superba, early pink. P. officinalis rubra and P. o. alba; Monsieur Jules Elie, best pink; Claire Dubois, violet-rose (a fine late bloomer); Livingston, late pink; Richard Carvel, early red (the best early garden type); President Roosevelt, red; and President Taft, light pink.

Keep Colorado beautiful by protecting the trees and flowers.

Make your garden plans now, and if you have an ordinary memory it will pay you to put these ideas down on paper. When the real routine of weed-cultivate-water begins there is little time to plan.

If you enjoy seeing seeds sprout and leaves unfold, try planting some seeds of the early vegetables and annual flowers in a flat in the house. It is lots of fun and gives extra weeks of bloom or fruit when these early plants are set out.

The house plants that have been growing all winter may be some what potbound and will benefit from regular light feedings of dry or prepared liquid fertilizers.

GREEN THUMBS

MAX BAUER

Max Bauer has made gardening both a hobby and profession. He has added to his natural ability with plants by continuous study. He is consulted by local gardeners and those from other climates, for his work shows that he knows his job. He is one of the best existing examples of the expert "private gardeners" of years ago. We hope that he will be an inspiration for many young people to train themselves in this most interesting work.

Max was born into a family of gardeners in Baden, Germany. There he grew up with vegetables and flowers all around him. In 1923 he came to America and worked in Rochester, New York, a while before coming to Denver. He worked a few years for several large estates and then came to be the gardener for the Churchill Owens, where he has been for the last 17 years.

He attended the National Shade Tree Conference last August and has been regular in his attendance of the meetings arranged by this association. He also served on the committee to arrange the Second Rocky Mountain Horticultural Conference.

He truly has a Green Thumb.

WHY PROTECT WOUNDS IN TREES

BY JOHN W. SWINGLE

STERILIZATION and wound dressing is a topic of considerable discussion in this area. If we consider a moment we will realize that as long as the outer tissues of a tree remain undisturbed by the elements—man, beast, insects, fungi, and bacteria—the tree might go on living for centuries; providing, of course, it had received sufficient nourishment. However, that condition is practically impossible. Trees are constantly subjected to all manner and types of injury. When the protective surface is injured we must try and provide by artificial means some manner of protection for the inner living and inactive cells from invasion by foreign organisms.

Why? Because the air is literally saturated with billions of different types of bacteria and fungus spores eagerly awaiting a suitable home to complete their life cycle. If it weren't for some of these agents none of us would be present here—the human beings in this world would have been crowded out of existence many centuries ago. These same decay agencies cause the oxidation of material structure to make room for the coming generation. Unfortunately, the great majority of cells which make up the plant structure have ceased to function and have become inactive or dead; making them extremely vulnerable to all kinds of decay organism. Believe it or not, a common board has just as much life as the inner wood of a tree, so to preserve our trees for many years we must seek to protect them from all these minute invaders. The trees in Denver, as in every city, are growing in an unnatural environment where they haven't the advantages of being fertilized by decayed

vegetation which is usually found in the forests. This makes treatment by artificial means very important.

If we touch lightly on the structure of a tree we can better understand why the treatment of wounds is necessary. The plant itself is a mass of billions of cells, both active and inactive. The older parts are protected by a covering of many layers of tissue called bark or cork. Beneath these layers there is a layer of fatty substance called suberia which renders these cells impermeable to water and gasses and external injury. Directly beneath this coating of cork lies the living and active cells, which are subject to parasitic fungi and bacteria. Beneath these lie the dead or inactive cells which are vulnerable to attack by the saprophyte fungi and bacteria—but, in this instance we must also face the fact that a usually harmless saprophyte may in turn, by vigorous growth, act as a parasite by destroying all the inactive intercellular structure. In most instances these are wound parasites which cannot enter the interior portion of the host through healthy tissues, but must make entrance through wound agencies where their mycellium or roots may cause a dissolution of their cellular substances. For instance, some consume the tannins or the roots may secrete enzyme which penetrates deeply into the host first dissolving cell components such as the lignin, next the lamella, resulting in the dissolution of the tissue. These fungi spread to new hosts by spores borne in various ways—some by the wind, and some by insects and animals. An unprotected wound, because of the moisture contained in the host, is an ideal breeding place for these spores.

When a tree surgeon treats a wound in a tree he must consider these facts very seriously. He must seek to sterilize or destroy by sterilization any foreign agencies that may settle on or in a wound. He must then seek to protect these injuries from further invasion by use of a suitable wound dressing until the wound itself heals by developing a new callus. That is why I so strongly advocate these methods. They are not new, but are the results of many years of research by highly accredited scientists all over the world. It has been proven that these organisms cause the destruction of many of our nation's finest trees.

Sterilization and wound dressing and, in some instances, cavity fillings are the only answers that science has thus far advanced.

There is a new series of "Basic Science" books in the library at Horticulture House which will fascinate everyone. Come in and look them over.

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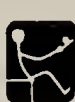
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MAKE A GARDEN SCRAPBOOK

MRS. E. R. KALMBACH

ARE you one of the folks who thinks scrapbooks are only for the children or the old folks? If so, may we tell you how we use scrapbooks as a real help in horticultural study? Having subscribed for many years to a large number of magazines which contained excellent articles and illustrations relating to gardening and related subjects, we found ourselves faced with the problem of storage for this mass of information. In spite of many and varied methods of indexing attempted, it seemed almost impossible to locate exactly what was wanted at a particular time. We became convinced that we must resort to clipping and filing. Here again we met defeat. Filing articles and folders was not entirely satisfactory. With use, the articles became dog-eared, and when loaned to some interested person were not always returned intact, if at all.

Then we tried scrapbooks, and wish to recommend them for your serious consideration. To us there is no pleasanter way to pass a winter evening, and if never referred to after being made, the maker has undoubtedly absorbed a wealth of information thru the act of collecting, reading, and assembling the material. And what a joy it is to turn the pages of a large book devoted we'll say to "Roses" or to "Indoor Gardening" and there see the fine articles and pictures which have appeared during many years in many periodicals. Added interest is created if each article is dated and source noted. Here you have not a book by one author, excellent as such a book may be, but the opinions and experiences of many experts or amateurs on the subject.

One need not spend exhausting effort on an artistic effect in this type of "scrapbooking".

A shelf or cupboard, three or four feet in length, and of generous depth, accommodates some twenty to thirty books, which yield their information quickly and pleasantly. A few topics in the writer's own collection may be suggestive to others: African Violets; Herbs; Trees; Landscape Art; Famous Gardens and Gardeners; Garden Poetry; Flower Arrangement; Garden Shrines, Sundials, etc.; Vines; Wild Flowers; Plant Names; Plant Science; Birds in the Garden; etc., etc. By all means start a scrapbook on *your* garden hobby, whether it be roses, iris, tulips, shrubs, or whatnot. You will never be sorry!

Here are a few hints for better scrap-books. Take out the cords with which most books are equipped and substitute metal "posts" of a size suitable to the thickness of your books, and you will never have torn leaves—your books will open as though bound. These posts may be found at any office supply or stationery store, and come in all sizes to fit books one-fourth inch to three or more inches in thickness. A good recipe for homemade, harmless, and inexpensive paste is as follows:

- 1 cup boiling water
- 2 level tablespoons minute tapioca
- 3 level tablespoons sugar
- 1 teaspoon lemon juice
- Pinch of salt
- Cinnamon

Put all ingredients in a double boiler and cook until very thick. When cool, it is ready for use. Keeps well if kept in ice box when not in use.

Happy scrapbooking!

(I wonder if Mrs. Kalmbach got a recipe for pudding by mistake. Sounds good enough to eat. Ed.)



THE FRAGRANT TIMBER PHLOX

As a child in the middle west, I welcomed spring for its woodland wildflowers — violets yellow, white, and purple, dutchman's breeches and dogtooth violets, spring beauties, hepaticas, and a few rare trilliums. But what gave me most pleasure, I think, were the wild sweet williams, really *Phlox divaricata*, so thick and blue at the wood's edge that we fancied a piece of sky had covered the ground overnight. We hunted among them for the occasional white one much as we hunted for four-leafed clovers and Texas children search for the wild white lupine among their fields of bluebonnets.

When I began gardening in this more austere climate at the foot of the Rockies, I secured some plants of timber phlox and discovered, when they bloomed, that I had gained possession of my childhood favorite, sweet william. It did not flourish at the

foot of a lilac hedge where I first planted it though it did have plenty of moisture there. Now I am establishing a colony in moist ground in the dappled shade of an ash tree where the plants seem happily at home.

P. divaricata is usually about a foot tall here, not so rank in growth as I remember it in the Missouri woodlands. It blooms quite early in spring and, with its delicate color and fragrance, is an asset to any garden. The white variety is in demand among gardeners who collect rarities, but it is certainly not more beautiful than the type. After all, what can be lovelier than bloom that reflects the blue of Colorado skies?

Maude McCormick.

Is the Hackberry a good street tree for Colorado?

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?? QUESTIONS AND ANSWERS ??

How far apart should I plant trees in my parking?

Look at the older parts of the city and you will see that most parking trees were planted too close together. Trees which will grow very large like Elm, Maple and Honeylocust should have at least 40 feet spacing, and 50 feet would be better.

My grapes are a mass of vines. Is it all right to trim them in March?

It is best to trim grapes in January when the ground is frozen. At that time the sap is not active and very little is lost. I would certainly take out some of the rank growth now, and take the chance of there being a little bleeding.

What is the best grass to use for a lawn in Colorado?

Kentucky Blue Grass is still about the best all around kind. Some prefer to include a little Redtop, as it is a hardy grass. If in a shady place, some rough-stalked Meadow Grass would probably do better than straight blue grass. If a low dense lawn is wanted and regular watering and mowing can be given it, one of the Bent grasses may be preferred. Some prefer a little white clover, and some do not like it.

I have several Chinese elm on my place. What special care do they need?

Do not overwater Chinese elm trees. Two or three thorough waterings a year will make better trees than more frequent waterings. They should be trimmed every year to remove dangerous V crotches and lighten up overly heavy horizontal limbs. Some bracing wires may be necessary to prevent snow damage.

Will Arborvitae grow in Denver?

That can not be answered with a yes or no. A great majority of the Arborvitae planted in Denver have disappeared, yet there are some specimens which have lived many years. Usually a shaded and protected spot will give them a better chance. Without doubt, there will some day be developed hardy varieties which will tolerate our hot winter sun.

Can I grow Pyracanthas in Denver?

There are several nice plants of the Firethorn or Pyracantha now growing in Denver, though there have been many plants brought in which did not survive. An east exposure will give these plants the best chance to thrive.

What is the best climbing rose for Colorado?

If all rose growers would vote, I believe that they would give a good majority to the Paul's Scarlet climbing rose. Of the older roses, Dorothy Perkins, pink; American Beauty; and American Pillar are in good favor. There are some with good possibilities among the newer climbers.

I am all confused about the value of organic or inorganic fertilizers. What are the facts?

There is no doubt that all our western soils need more humus or organic matter, but it is foolish to say that there is no value to chemical fertilizers when intelligently applied. There is little basis to the claim that crops grown with no chemical fertilizers are healthier or more free of pests. A soil with plenty of good manure or compost will usually grow good crops. The presence of angleworms in a soil is more an indication of the presence of considerable humus rather than the lack of chemical fertilizers.

MARCH GARDENING

MAKE arrangements for a dormant spray if you have scale insects on any plants. Check the ash trees, lilacs, cotoneaster, dogwood and willows for oystershell scale; the elms for elm scale; the maple, linden, honeylocust, elm, viburnum and other shrubs for cottony-maple scale; and the pine and spruce for pine scale. Dormant spray must be applied before the leaves appear, and while the weather is well above 40 degrees.

When the ground first thaws out is time to think about planting sweet peas and such self-seeding annuals as larkspur, calendulas, sweet alyssum, snapdragon and California poppies.

As the ground becomes dried out the necessary transplanting may begin. Trees, shrubs and perennials may be moved. Most ordinary things are safely moved as soon as the ground is thawed, but very particular things like birch, hard maple, and hawthorn come more surely when moved just as the leaves begin to break from the buds.

When the soil becomes workable is time to prepare the beds for annuals and vegetables. Spade in some manure, peat or leafmold. Work it in deeply and thoroughly.

If your lawn has been planted on the usual basement soil, you will probably benefit it by an application of good fertilizer. Whatever you may think that you need of the quick-shot fertilizers later in the season, now is a better time to use the organic fertilizers which have a slower and longer lasting effect. The best assurance of getting correct quantity and quality in organic fertilizers is to deal with a known and reliable firm. People are easily fooled with these materials.

If you have rhubarb, asparagus, peonies or bleeding hearts to move they must be transplanted early.

If the grapes were not trimmed in January, it may be that they can still be done, without excessive bleeding.

Arrange to have your trees checked by a competent arborist. Elm trees especially must be carefully gone over and every bit of dead wood removed which might harbor bark beetles.

Do not depend too much on the subsoil moisture that might have accumulated during the winter. The chances are that the soil around the lower roots of your trees is dry. Prospect in a few places and find out, then if it is dry give everything a good thorough soaking.

Check again the condition of the bulbs in storage. If they are shrivelling, give them a little moisture, and if they are sprouting reduce the temperature and humidity.

If any insects came in on the Christmas plants they may have spread to all the other house plants. Check them carefully for aphids, mealy bugs and scale. If you do not know the proper treatment for each of these it might be worthwhile to dust or spray every week or ten days with an all-purpose insecticide.

When the early spring garden urge first hits you and the ground is still not fit to work, is the time to visit your neighbors' gardens and learn from them some of their successful garden tricks.

Bring in a few branches of forsythia, plums or spirea and watch the bloom unfold in water indoors. It gives a little foretaste of spring.

The Green Thumb

APRIL, 1949



IN THIS ISSUE:

Starting Plants for Early Bloom

Preparation of the Rose Bed

Sweet Peas

A Hint for Seed Sowers

APRIL SCHEDULE

April 1, Friday, 7:45 P.M. at Horticulture House. "*Native Plants for Landscape Use in Colorado*", by Andrew Larson.

April 2 & 3, Saturday and Sunday. Call Mrs. Anna Timm, PE 5565 for details of proposed snowshoe trip to James Peak. Details cheerfully given.

April 7, Thursday, 8:00 P.M. at Horticulture House. Rose Society.

April 8, Friday, 7:45 P.M. at Horticulture House. Kodachromes of Dinosaur National Monument by T. V. Cummins of U. S. Geological Survey. This is the location of one of our proposed botanical trips for next summer.

April 15, Friday, 7:45 P. M. at Horticulture House. "*Plants for Indoors and Outdoors*" by Mrs. L. B. Shelby.

April 20, Wednesday, 8:00 P. M. at Horticulture House. Commercial Men's meeting.

April 22, Friday, 7:45 P. M. at Horticulture House. Kodachromes of Wild Flowers Blooming in April, by Selma Grout Bussell.

April 24, Sunday, Meet at Horticulture House 9:00 A.M. Wild Flower Trip to The Silver Cedar Botanical Reserve along the Beaver Brook Trail led by George W. Kelly.

April 29, Friday, 7:45, Horticulture House. "*Annual Flowers for Denver*", illustrated with kodachromes, by Frances White.

May 1, Sunday, 8:00 A.M. Wild Flower Trip to American City and Apex. Register several days in advance so that transportation can be arranged.

*Picture on cover of one of the earliest wildflowers of the plains, Sandlily, *Leucocrinum montanum*. From a water color by Mrs. Frank Irvin. One of series in our library.*

PROPOSED SUMMER TRIPS

We are now arranging for several trips into the wild country where we may collect plants for our herbarium and enjoy the primitive beauty. Some of these will be rather extensive, some short. Some will be easy and some rather strenuous. Dates and places may be shifted to accommodate participants. Call us for particulars if you are interested.

May 28 to June 5. It is planned to explore and collect in the little known Paradox Valley. On this same trip we hope to take a ride on the famous "galloping goose" to Dolores. Other side trips may be arranged by some of the party.

June 25 to 27. A short trip is proposed into the western slope of the Gore Range. This is beautiful wild country.

July 1 to 10. During this week a climb of Mt. Elbert is planned followed by a short backpack trip in the vicinity.

July 11 to 12. A short overnight backpack is planned into the vicinity of Crater Mountain.

July 16 to 24. This will be one of the big trips of the season. The destination will be the wild and beautiful Yampa and Lodore canyons in the northwest corner of the state.

CARNATION AWARD

At the National Carnation Show held in the Denver Auditorium recently Mr. William Hoyne of the Broadmoor Greenhouse, Colorado Springs, was awarded the Dorner Memorial Medal for the finest hybrid. This beautiful red carnation which was named for Mr. Spencer Penrose received 93 points, the highest in over one hundred entries. We congratulate Mr. Hoyne on this achievement.



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A LITTLE BIRD TOLD ME

While walking down a busy street
 I saw a little bird;
 I listened to his carol sweet
 And this is what I heard:
 SPRING IS HERE!

This little bird is wise and pert;
 Now isn't it absurd
 That most of us seem less alert
 Than one small happy bird?

FLORENCE BELL TYSON

The Green Thumb

A Bulletin of the

COLORADO FORESTRY AND HORTICULTURE
ASSOCIATION

Organized in 1884

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MISS LORENE SMITH, Editorial and Adv. Asst.

MISS ALICE WOOD, Assistant Librarian

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Published Monthly.

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Vol. 6	April, 1949	No. 4
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An Acre Under Shade



The accompanying pictures show better than many words that **ROAD-SIDE STANDS NEED NOT BE UGLY.** These pictures are of the little sales house built by Mark and Claire Norton for their gardens at LaPorte, Colorado. This building adds beauty to the roadside rather than detracting from it. Such a well designed place is not only an ornament to the roadside but should be good business for the owner. Let us hope that many others follow this outstanding example.



STARTING PLANTS FOR EARLY BLOOM

BY L. J. HOLLAND

IT is getting time of year to start thinking—and doing—something about starting those plants that are wanted for the early border. Also, there are certain plants that require a longer season than can be had by planting in the open ground. In this latter category are included such favorites as: Aster, Scarlet Sage, Flowering Tobacco (*Nicotiana*), Petunia, Ageratum, Lantana, Nierembergia (Cup Flower), Verbena, Lobelia and Torenia (Wishbone Flower).

If sufficient room is available an electrically heated hot-bed is the ideal medium for starting plants of any kind, but where this is impractical there are several other methods that are quite satisfactory. Perhaps it would be proper to discuss all these methods more fully.

A hot-bed is essentially a frame or bottomless box with some form of bottom heat and covered with a close fitting pane of glass. Although the cover must fit snugly to retain all the heat possible, any side must be free to be raised for ventilation when necessary, the side opposite the wind direction is the one always raised to prevent drafts. The size of the frame itself will largely be governed by the size of the heating unit, if electricity is used, but the length and width should be so that the flats (if used) take up all the space.

The flats themselves are generally about 4 inches deep and constructed of light materials, commonly wood. Holes in the bottom of the flat should be provided for adequate drainage, and the bottom covered with broken crocks, coarse gravel or vermiculite to a depth of one inch. Finish filling the flats with a mixture of one half top-soil, one-fourth sand and

one-fourth leaf mold. For those who do not wish to mix their own, good potting soil is very desirable and may be obtained at many greenhouses.

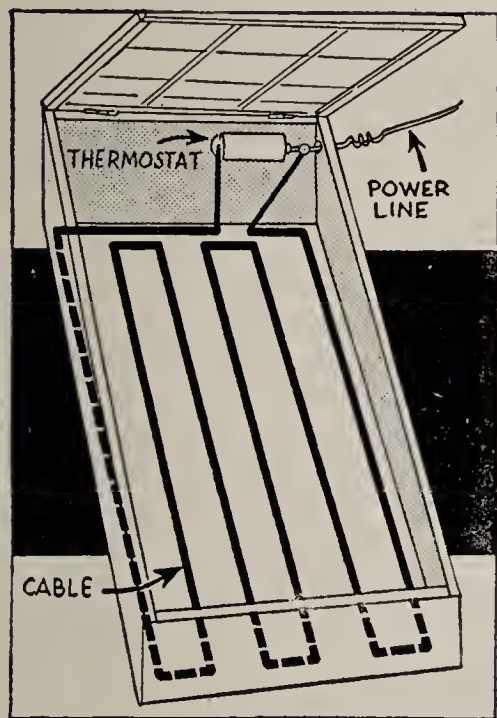
Those not having hot-beds may set the flats, bulb-pans, or whatever are used, in a sunny window, covering with a pane of glass to prevent excessive evaporation. When moisture appears on the underside of glass, it should be lifted for ventilation. Wipe off excess moisture before replacing glass.

Generally speaking, seeds should be planted to a depth of three times their thickness, but tiny seeds, such as Begonia, Petunia, Ageratum, *Nicotiana* and Swan River Daisy, should be firmly pressed into the soil without further covering. A tin can, (an evaporated milk can is excellent), rolled lengthwise and across each end does an excellent job of firming the soil without packing it and a uniform pressure can be easily maintained. A newspaper laid on the soil will prevent excessive evaporation and thus assure better germination. This, of course, must be removed as soon as the tiny seedlings appear.

Lupines and Sweet Peas should be planted in plant bands, so that their long tap-roots are not disturbed in transplanting. You can get two weeks earlier bloom by handling these plants in this manner.

Pansies started now will bloom this summer and continue to bloom until snow falls, if given a spot protected from the afternoon sun. It is not unusual to have plenty of blossoms well past Thanksgiving when handled in this manner. If trimmed back and lifted and placed in a cold-frame or given a good covering of straw they will winter nicely and start bloom-

ing again early in the Spring. It is also possible to do this with Snapdragons with like results. The little extra effort required is far more than repaid in a longer and better bloom-



ing season, when compared to starting plants bought in baskets.

Cabbage, Tomato, Eggplant and Pepper are easily grown at home by the above method, but the few that the average gardener requires are perhaps best bought from a reliable dealer. But for flowering plants, there is nothing like the satisfaction of growing your own, and at a fraction of the cost of buying the blooming size plants. Also you have the added factor of having plants just when you want them to spot in those ragged places in the perennial border or bulb plot.

Nothing shows one who his friends are, like prosperity and ripe fruit. I had a good friend in the country, whom I almost never visited except in cherry time. By your fruits ye shall know them. — Chas. Dudley Warner, *My Summer in a Garden*.

HAVE YOU SEEN PRINSEPIA?

M. WALTER PESMAN

It is not very often a brand-new tree or shrub is found to be quite hardy in this Rocky Mountain region. If, besides, this new find is a worth while addition to our garden,—then it is time we arrange for a press-agent.

Prinsepia sinensis, (and the poor thing has not been baptized with any other name than Cherry Prinsepia), has been growing in the Denver City Nursery, at Iliff and South Logan, for a couple of years and seems to be quite hardy. It has not even frozen back in this pronounced cold spell,—as far as we can tell.

Now for its virtues. Perhaps usefulness should be mentioned first. This shrub, being a close relative of cherries and plums, bears a purple, juicy, cherry-like, fruit, from one half to three quarters of an inch in diameter. It has a pleasant acid taste.

The interesting thing is that, in the Arnold Arboretum, at Cambridge, Mass. these cherries have been produced only sparingly. But in Denver, last summer, a pretty decent crop was realized in the City Nursery. Evidently Prinsepia likes this climate.

Unlike most members of this cherry tribe, where pink and white blossoms prevail, Prinsepia has yellow flowers, bright yellow, over half inch across; they appear together with the leaves, that is, quite early in spring. As many as four flowers may come out in a cluster: a pleasant sight.

It is also different in having thorns, small slender thorns, not enough to be repulsive, just to make it more interesting. (Isn't attraction added, if we are kept at a distance?)

All in all then, we are glad to welcome Prinsepia as a newcomer.

PREPARATION OF THE ROSE BED

BY A. E. ALBERA

AN IDEAL soil should contain a certain percentage of solids; a certain percentage of organic matter; and a certain percentage of capillary or pore spaces. Neither sand nor clay will provide the ideal soil but with proper modification close to ideal conditions can be maintained.

What constitutes an ideal rose soil is the basis for many conflicting reports and opinions. However, it has always been my belief that the structural or mechanical condition of the soil is more important than its original fertility. Once a rose is planted nutrient solutions can be added from the top, nothing can be done about the underground condition unless the plants are dug and the beds remade.

The percentage of humus that should be incorporated in the soil has been rather accurately worked out, both by the trial and error method and by fairly accurate scientific tests. This figure is somewhere around 33 1/3 percent. Maximum results seem to be obtained when the organic content of the soil is neither greater nor less than this figure.

The very famous rose hybridizer, Pernet-Ducher, after a great many experiments, arrived at the conclusion the minimum depth a rose bed should be dug is 30 inches. He also discovered best results were obtained by the use of 25 to 35 percent organic matter.

"The lower layer of the trench should be well mixed with cattle manure, but the upper layer clean, wholesome soil to prevent root infection, from contact with manure."

Chambard, another French grower, arrived at almost the identical conclusions.

A. Meilland, the father of the hybridizer who produced Peace, after many experiments chose to follow the same cultural methods.

Jean Nicolas, who studied rose culture all over the world concurs; that is, deep trenching and 1/3 organic matter.

It will be noted all the older French authorities used cow manure with apparently excellent results. Incidentally, the use of so-called peat moss as a soil conditioner is of relatively recent origin and was probably not available to them at that time.

Further, in regard to the quantity and quality of the organic matter that should be incorporated in the soil, some very interesting experiments were carried on by Professor Chadwick (Ohio) as recently as 1943. Ten beds were prepared in silt loam soil. One bed contained no organic matter whatsoever. Another contained 1/3 rotted manure. Other beds contained peat moss in degrees varying from 1/4 to 1/2. The results were based on plant growth and bloom production. While peat is said to contain no nutritive value the beds containing this element in the proportion of about 1/3 were generally superior to the other beds. The tests also showed the results from plantings in soil containing an over abundance of humus were no better than those planted in beds with no humus.

Another factor that should be remembered in making up a rose soil is the difficult problem of handling the very important element, phosphorous. It is well known phosphorous is hard to feed from above and that it stubbornly stays pretty much where it is put. It is also a botanical fact that roots will seek out phosphor-

ous in the soil and will actually travel in the direction of a deposit. It therefore seems logical that a liberal supply of phosphorous should be incorporated in the soil when the bed is made up, especially deep down.

Bonemeal, as a source of phosphorous has been praised and cursed by various authorities. Note the following from Nicolas:

"European rose growers agree that bonemeal is useless for roses, as it takes a number of years before its contents of phosphoric acid can be released in sufficient quantity to do any good. Furthermore, the high pH of bonemeal (10.2) may be toxic to soils of an already alkaline reaction. Superphosphate is the logical source of phosphoric acid because it is immediately available."

In contradiction: Smith (1941) reported that tests conducted in Virginia indicated that bonemeal gave comparable, but no better, results than superphosphate.

After reading and digesting the wisdom of the authorities for a good many years I have arrived at a composite that I choose to use in making up a rose bed. Briefly, the following is my formula:

I dig 2½ feet and break the bottom.

I prefer Canadian peat because of its acid reaction, because I believe it to be superior to rotted manure, and because it can be used with safety from the bottom of the bed clear to the top.

Because roses seem to be able to tolerate a large quantity of phosphorous I use both bonemeal and superphosphate, one for an immediate source and the other for a longer lasting supply. I have never had bad results from an over-dose of phosphorous.

If I should have compost on hand that I was sure was in an advanced stage of nitrification, I would use it, and cut down on the amount of peat moss.

Beds, even though tamped, will settle a great deal and therefore should be made up as far in advance as possible. Also, if manure is used the aging process will cut down the danger of infection or injury to newly formed fibrous roots.

Some Plants Which Are Likely to Tolerate Alkaline Conditions In Colorado

TREES

Siberian (Chinese) Elm	Russian Olive (gray leaves)
Honeylocust (slow)	Poplars

TALL SHRUBS

Siberian Pea shrub	Privets*
Tamarisk	Lilacs, Persian and Common
Bush Honeysuckle*	Rose Acacia
Russian Olive	Buckthorn
Sumac*	Skunkbush Sumac
Peking Cotoneaster*	

LOW SHRUBS

Leadplant	Spireas*
Indigobush	Currants*
Snowberry*	Matrimony Vine
Coralberry*	Dwarf Pea Shrub

FOR HEDGES

Russian Olive	Bush Honeysuckles
Siberian Elm	Cotoneaster
Lilacs	

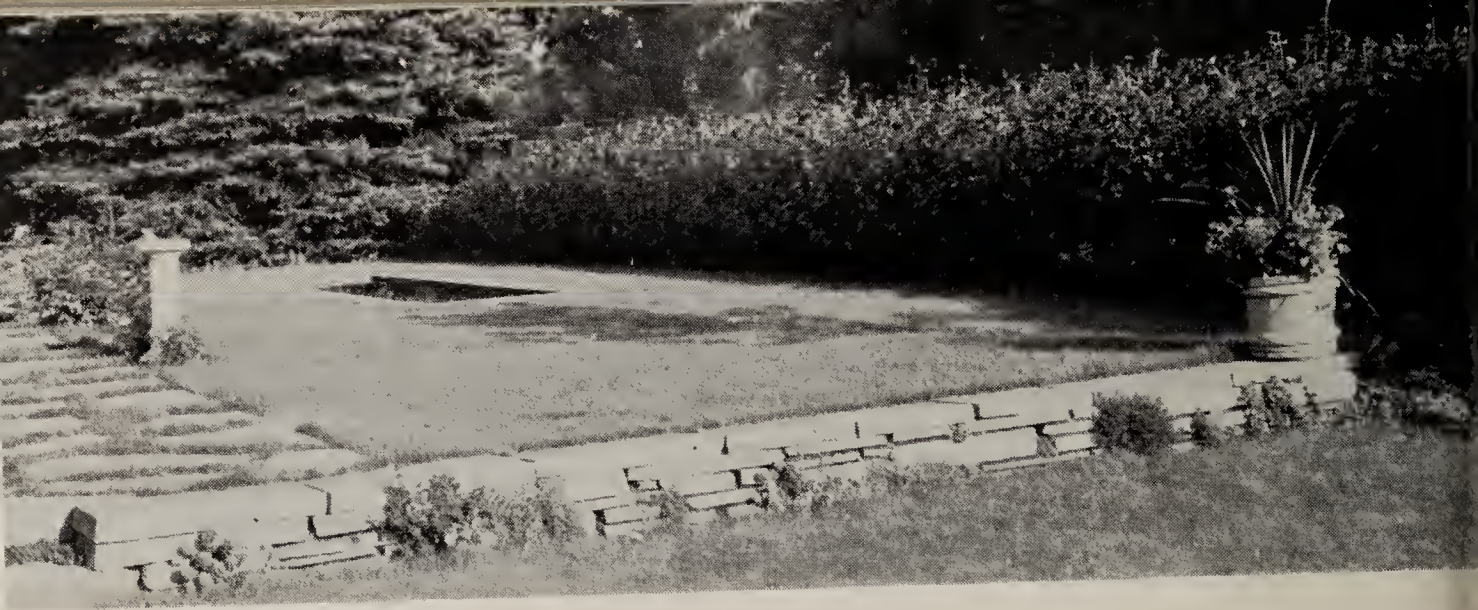
PERENNIALS

Achillea	Heleniums
Boltonia and Fall Asters	Hemerocallis
Painted Daisies	Iris
Shasta Daisies	Liatris
Chrysanthemums	Blue Flax
Delphiniums	Nepeta
	Veronicas

ANNUALS

Zinnias	Sweet Alyssum
Marigolds	Bachelor's-Buttons
Calendulas	Four O'clock
Petunias	Nasturtiums
Cosmos	Poppies
Cleome	Sunflowers

*Indicates also tolerant of shade.



FINE GARDENING

BY MYRTLE ROSS DAVIS

I SHALL never forget the thrill I experienced when I first began to appreciate fine gardening and to see that a well arranged garden is one which is beautiful, interesting and useful.

My early attempts at gardening must have been somewhat comparable to the cowboy who, when asked to play the piano said, "Well, I never have but I'll try." I had plenty of confidence but I did not know what constituted a good garden. I was essentially a horticulturist, who knew plants and how to grow them, but I did not have the faintest idea how to put them together in a pleasing design. I had the paints, the brushes and the canvas, but I couldn't paint the picture.

However, a short college course in landscape architecture changed my whole conception of a garden. This started me off on a fairly extensive study of the subject and I took advantage of every opportunity to visit well designed gardens. Now instead of placing the emphasis on the horticultural side I think of design as the most important phase.

I have learned to stand back and look away from the individual plants so I can see the beautiful pictures. These views are best when seen from the doors and windows of the dwell-

ing, the porch or terrace, the garden house or seat or any other important point in the garden.

These pictures must have sequence, unity and balance. The greatest center of interest should be the focal point with the other subordinate things leading from one to another up to this climax. The many things are then seen together as a whole. Balance is produced by an exact symmetrical arrangement or by an equality of interest on each side.

The best lawns which I have seen adjoin the living rooms of the house and have an open center. They then serve as a foreground to the picture beyond.

I used to think a great variety was desirable but now I know a great number of plants create confusion and unrest. The best gardens have a predominance of one kind of foliage with enough contrast in color and texture to avoid monotony.

Straight lines seem to be better borders for small places for they emphasize long dimensions and thus create an illusion of space. In larger areas such as parks, curved lines may be used because a long straight line would become tiresome.

Points of interest in gardens are features such as, arbors, tea houses, pools, rock gardens, bird baths, gate-

ways or specimen trees and shrub or flower groups. Too many features have a tendency to cause confusion and none of them arrest the attention or stand out as unusual. It seems better to have too few than too many.

Generally the interesting points are best placed in a recess of foliage or at the end of the axis or line of vision and they should always have a proper background and framing. Some may be partly or wholly hidden from the main view so that they give an incentive to walk into the garden and investigate further.

The well planned gardens which I have visited have all the unsightly places screened off and full advantage is taken of any interesting distant view. These views are carefully framed by trees and shrubs.

The better garden designers say

that the front yard should not contain any feature which might take the interest away from the dwelling. Trees are best placed to the side and a little in front of the house to frame the architecture, while shrubs are placed to mark the boundary and to soften the angles and make the transition between the house and the yard.

Above all things, it has been impressed upon me that to be useful a garden must have seclusion. The yard should be enclosed by a wall, a hedge, a tall shrub border, a lattice or a vine covered fence. Unless it has this privacy it defeats the purpose for which a garden is intended. If there is enough shade and comfortable resting places to enjoy oneself and to entertain friends an atmosphere of relaxation and peace is



created. The open lawn may be used for games and in larger places, areas are sometimes set aside for play grounds and contain such facilities as a tennis court, swimming pool and bowling green. In our own garden we use an outdoor fireplace a great deal for picnics and parties.

Landscape artists say that walks are useful and attractive but great care should be used in placing them so they will not cut the pictures in two and they must always lead to something of interest. They are used extensively in formal gardens to create a pattern. I have seen many walks placed between the lawn and flower border. They then lead by an interesting part of the garden and also keep the grass from growing into the beds.

Plants, lawns, features and walks, all make up the garden, but it is only when these are placed in an artistic design that the result is satisfactory. I do not want to suggest that all gardeners become landscape architects, but I do believe any gardener will get more enjoyment out of his own and other gardens if he will pay more attention to that combination of design and horticulture which makes landscape an art. He will then know what is meant by fine gardening.

Garden Wisdom from The Ancients

While the earth remaineth, seed-time and harvest, and cold and heat, and summer and winter, and day and night shall not cease.—Gen. viii, 22.

The noisome weeds that with profit suck the soil's fertility from wholesome flowers.—K. Richard II; III, ii, 152.

Rich soils are often to be weeded.—Francis Bacon.

SOUTH WIND

by BURTON O. LONGYEAR

A wind from the southland came one day

At the close of a winter long
And cleared the snow from the fields away

While it sang me a treetop song.

From tropical islands and rustling fronds

I have come over billowing seas
To linger awhile among shadowy ponds

And sway the gray moss on the trees.

Through the valleys I've loitered with birds and bees

On my way to the far northland,
Where I'll wake up the buds on the waiting trees

With the touch of an unseen hand.

In the aisles of the forest I'll stir the dead leaves

To set all the wild flowers free,
Then I'll sing in the boughs where the hangbird

Weaves her nest in the old elm tree.

Mertensia coriacea



TWO CHOICE PLANTS

A talk given by MRS. K. N. MARRIAGE at the recent Rocky Mountain Horticultural Conference.

OUR program lists this period as discussion of "New and Unusual Plants for the Rocky Mountains." I've taken the liberty of changing the preposition 'for' to 'from'. While there are many plants from other places which we in the Rocky Mountain region could use—and don't—there are probably many more plants, natives of the Rocky Mountains, available for gardens of all the north temperate zone both in the eastern and western hemispheres not yet known or certainly not widely known to horticulture.

Two that I found "on the hill at the back of the house" little known yet, are top notch rock garden plants.

Boykinia jamesi won an award in that Grand National of shows, the Chelsea Show in London, in pre-war days and was pictured in color in several of the leading gardening magazines of England soon afterwards. This grows on many of our mountains but is most lavishly distributed on Pikes Peak, "the hill at the back of the house," filling 6-foot vertical rock crevices and spilling out into lakes of clear rose pink. Worth growing for its frilly pleated foliage if it never had a flower.

Mertensia coriacea, plentiful too on Pikes Peak from timberline to the top, is the best behaved of its family in the Rock Garden. Its blue-green foliage together with its wide-eyed way of looking up (instead of hanging its head like most of its sisters) are points in its favor. Then while it enjoys a poor gravel soil, overfeeding doesn't make it coarse, lush or too buxom. This *Mertensia* won the award last May for the best rock garden plant in the annual show of



Boykinia jamesi

the Scottish Rock Garden Society. We hear much about the beauty of English gardens but the Scottish gardeners are the most discriminating of any. Both of these plants grow well at 5000 to 6000 feet in well-drained peaty soil in a north exposure.

Both may be raised from seed—with patience—but *Boykinia* takes its own time about getting ready to bloom. It seems to say "I'm here for permanence, why hurry?"

NEW AND UNUSUAL PLANTS

BY WM. LUCKING

*From a talk given at the Rocky Mountain Horticultural Conference
in Denver, February 7, 1949.*

WHEN it comes to plants, new and unusual plants, I have been away from the nursery trade for four or five years. After being a nurseryman with Mr. Roberts for 17 years, I then took a notion to go outside for 5 years, and have been away from these newer and unusual plants. Some of them I still can recollect, if I have the frost out of the crevices of my brains, and the one plant which I think is unusual and not growing too extensively is the Eremurus, or the Foxtail Lily. I have had extensive experience with this. Mr. Roberts got some and I was told they came from the Himalayan Mountains at a prohibitive price. I understand that they are now available, and can be readily bought. They are unusual plants in several ways: They are the first things that pop out of the ground in the spring; they are large plants, more or less for a large garden, and require well-drained soil; they pop out pretty nearly as soon as the frost is off the ground, once in a while the frost will get them but, they will stand considerable frost, and almost always we get blooms. The foliage on these, when they are fully developed, looks like that of the Century Plant—white, long, with large broad leaves. They grow very rapidly and bloom the first part of May if weather conditions are right. When fully matured they grow to about 8 feet high with a flower itself from 3 to 4 feet long. They come in pink and white, and now they have developed a hybrid. I only grew the pink and white for the reason that I was growing them for cut flower purposes. As a cut flower they were used more or

less for advertising purposes only in the florist trade. You will see them in the windows sometimes . . . I don't know whether you recognize it or not . . . they display it early in the spring in large groups. In a display they take on a very artistic curling effect. They will drop their heads around when they are cut. They are cut absolutely straight, but after cutting they form a beautiful curving effect. The pink one is robustus and the white one is the himalayus. The white one is my favorite because I think it is just about as glossy as can be. So much for the Foxtail Lilies; but, I would like to see them grown more. After they are through blooming, they die down and you can clean off this foliage and plant annuals over them. Their life is . . . well, they just have no life span. They just go on and on and you have to dig them up every five or six years, for when they make a new set of roots, this new set of roots form on top of the old and work themselves up. They have an enormous octopus-like root.

We have had considerable discussion on plants of the shrubbery group. I will confine myself to more or less perennials and if we have time enough, I will bring in some shrubs.

One plant I like for crevices in rock gardens, in walks, and steps is the *Arenaria montana*. It is a very dainty plant, grows in more or less a moss form, blooms early in the spring, and later in the fall, will make a regular mossy coverage. It doesn't like full sun. The full sun will burn it, and winter sun will burn it, so it would be a good idea to give it partial shade.

Another plant which I think is outstanding is *Euphorbia palustris*, or Japanese Spurge. These are among the first plants to pop out in the spring and as they develop, their bloom is right from the time they start to come from the ground. They grow on until about 18 inches high at full growth. The flowers are yellow with a long period of about six weeks. The feature about this plant is that it has good foliage, and in the fall it is one of the few perennials from which you can get color.

One of my favorites for the rock garden is the *Helianthemum*. It comes in colors all the way from white, pink, yellow, apricot, mahogany and also comes in single and double forms. It requires a real sunny location, and well-drained soil. It is nearly an ever-green plant; but, a good idea is, in the spring, to cut it clear back. It doesn't like transplanting; it is hard to transplant. Young plants usually are grown from cuttings handled in pots and replanted. You can't divide them as they form a solid root.

Another plant which was brought out at another meeting, and which I think is an outstanding plant, is *Veronica incana*. This plant has gray foliage and grows close to the earth with a little rosette. It shoots up a very straight spike with flowers of an amethyst blue color. After the flowers have gone, you clean them off and still enjoy the foliage. It is a very, very nice plant, if you like this gray foliage.

Spiraea filipendula (meadow sweet). I think this is outstanding. The reason I mention this as outstanding is because we have so many perennials which after the bloom is gone become untidy; but, this still has an outstanding foliage. Its foliage resembles the fern and you can grow them out in the full sun and still have this foliage after the flower is gone. They come

in a single and double blossom. They grow about a foot high with a slender wiry stem.

I will mention a few shrubs. We have already heard Mr. Williams mention the *Euonymus alatus*. If I could have but one shrub in my garden, it would be *Euonymus alatus*. The flower is very inconspicuous. It is just a little white flower. The fruit is red. It grows very, very slow but I don't think there is another outstanding shrub that will color up in the fall like the *Euonymus alatus*.

Another shrub I will mention is a large one. The *Viburnum lantana*. That has your lantana leaf, regular wrinkled heavy foliage. It makes a large shrub and you can grow it either as a specimen or in your shrub border. It has large flat white flowers which bloom in May and June. In the latter part of the summer it has red berries and in late fall they turn black.

There is another outstanding shrub—it isn't a new one by a long way—but I don't believe there are enough of them growing. That is your white flowering almond. I have one picture here which I will send around. This was taken in a rock garden at my home. It blooms in May and the plant shown is about 7 or 8 years old now, did very well and never killed back. It has never had a pruning shears on it. It will have to be grown on its own root to be successful. They are very difficult to get to root.

Dr. Hildreth mentioned that the U. S. Plant Bureau is collecting and getting new plants in from all over the world. While working at Roberts' Nursery, each spring we would get a big list of plants and we would shut our eyes and point our finger down and that was the plant we would probably order.

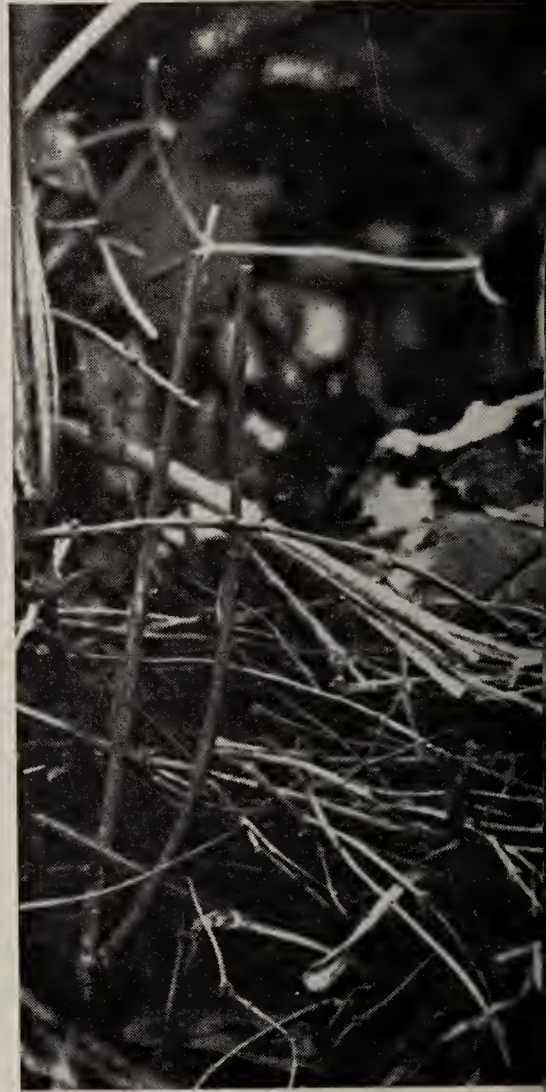
HAVE you ever enjoyed your morning coffee watching a Downy Woodpecker working energetically on a limb of a mountain maple tree while a Red-breasted Nuthatch, hanging upside down, pecked sedately at a chunk of suet? Or, observed a dozen Chickadees taking turns darting in and out of a feeder filled with sunflower seeds but paying little attention to the dainty Juncos eating from a pan of mixed grain? The coffee is ever so much better but the delay to one's household duties is disastrous! Night time, more often than not, finds one performing such mundane tasks as waxing the kitchen floor or cleaning the silver.

If you don't like birds and little animals, don't move to the mountains, restore an old house, and put in large windows. If you do, first thing you know, you will be sitting quietly for hours—and forcing your friends to do likewise—watching the antics of the “little folks”. Time was when I zipped into my work, getting every task finished on schedule. Not any more; not since moving to Georgetown up in Clear Creek County. Now I sit for hours waiting for a Red-shafted Flicker to put in his appearance for breakfast, or a Long-crested Jay to shyly get his slice of bread to store away. If they are a little late, I think of a myriad of things I might have done to displease them!

Food conservation means little to our gay-feathered friends. They seem to have their favorite feeders as well as food, and we soon know if something is not to their liking. Off the feeder it goes! The Snow Birds or Juncos — Pink-sided, Shufeldt and Slate-colored—scratch for their living but when the snow is deep, flock to the mixed grain feeders. The saucy Chickadees—Mountain and Long-tailed (Chickadees are the little fellows with

FRIENDLY

BY ON



Black-he

black caps and bibs)—prefer sunflower seeds and suet but are not adverse to a repast of peanut butter on bread and fruit cake.

Early last Spring an enthusiastic friend recommended a certain mixture of grain. My husband, with the attitude of “nothing is too good for our birds,” promptly came home with a supply. Imagine our surprise when later in the season a bumper crop of radishes and mustard sprang up on the lawn. It was too fancy for the birds but the chipmunks and Say's

RELATIONS

JDDER



Grosbeak

ground squirrels found the greens most palatable. They would sit up, holding the top of a mustard plant in their front paws, and nibble away at the bright yellow blossoms. Much to our disgust, nasturtiums and pansies were also among their favorites. "Squeaky," the littlest chipmunk played hide-and-seek all Summer long with the johnny jump-ups.

When the supply of sunflower seeds is exhausted, the Chickadees hop in and out of the feeder, scolding sharply, until something is done about

it. When I am patient, they will gingerly take the seeds from my hand and when my husband replenishes the suet containers, they watch him curiously, chattering gaily while they flutter around his head. They dart down, grab a sunflower seed, and away they go to sit on a limb and crack it with their sharp little bills. Never still a minute. Their call of "chick-a-dee-dee" is as cheerful as the brightest of Summer flowers.

Each evening at dusk a Shufeldt Junco delights in sitting for a long period in the middle of a feeder which is tucked back in a rock wall. Some of the Chickadees will only eat from the top of a feeder. Particular, aren't they? Last Summer a Pink-sided Junco brought her fluffy babies down, established them on the grass under a feeder, and promptly busied herself scratching out grain for them. After a sumptuous meal, they received their first lesson at the bath, accompanied by a young Towhee.

"Scratchy" is a name we have given all the Green-tailed Towhees — we never can tell them apart. These rufous-headed birds, with the white neckties, never become intimate with the other boarders, but from the day of their arrival in Spring, seem to "take over." Announcing themselves with a soft "mew-mew," they go directly to the feeders, forcing the other occupants to leave. For the last two Summers a feud has existed between the Towhees and Black-headed Grosbeaks. Finally, during nesting season, the hungry female Grosbeak stood her ground and refused to budge from the feeder when "Scratchy" arrived. Such a commotion! The Towhee was indignant; he flew up on the terrace, fluffed out his feathers, pacing and "mewing," until the Grosbeak returned to her nest. Neither do they like the neighborly little chipmunks and ground squirrels but dart at them

spitefully when these friendly animals attempt to drink from the municipal water pan. Towhees are scratchers, preferring underbrush, and when we see a shower of leaves and dirt in the garden, we know who is at work.

It took two summers of coaxing before a female Black-headed Grosbeak could persuade her handsome mate to visit our yard. He would stay in a tree on the mountain-side and sing his lovely song while she feasted. Finally, during mating season last Spring, she convinced him and for the rest of the Summer he was there on the hour. The male Grosbeak really assumes his parental duties, taking his turn on the nest. Later, we were rewarded by having him fetch their two offspring down for our approval. Mrs. G. spent hours trying to teach them to fly from a tree directly to the feeder. They couldn't seem to understand; they would miss the feeder and go straight to the ground. Mama was exasperated and would show them again. Finally, out of sympathy, we put the cantaloupe seeds on top of the feeder, thus relieving everyone of any further responsibility. In no time, the entire family, including Papa, were all on top of the feeder! Next day, due to further coaching from Mama, one baby found his way to the side and was soon followed by his brother.

The impertinent Clark's Nutcrackers look very much like overgrown Chickadees but there the similarity ends. Having enormous appetites, it is a common sight to see six or more of them at the suet holder at the same time. They will take a large piece of suet, throw back their heads, and literally "gargle" it down. It took a Downy Woodpecker several days to get up enough courage to have his lunch with such clamorous companions.

An audacious gray squirrel often scoots down the old rock wall, built many years ago by the narrow-gauge railroad, and joins "the family" for a meal. He spent most of Thanksgiving Day stuffing himself on suet and mountain maple seeds, chattering loudly at the Jays who resented the intrusion.

Another winter boarder is "Bunny", a rabbit, who hops cautiously to the back door for some carrot shavings or preferably a chocolate cookie. If any bread crumbs or grain have been left on the walk, he shares it with the birds, never failing to face the road in constant watch for Rusty, the pooch next door, whose chief delight is chasing rabbits and chipmunks.

Late winter arrivals are the busy Red-breasted Nuthatches. About the middle of February, they can be seen at the suet containers. We call them the "topsy-turvy" family, for they seem as comfortable standing on their heads as right side up! 'Round and 'round and up and down the tree they go in search of food. Full of curiosity, they are apt to come close enough to peer in your face if you stand very quietly. It is a thrill to see one of these tiny mites perched next a large bird.

The most recent addition to our sanctuary is a group of Tree Sparrows. Easily identified from other sparrows by their red-brown caps and black breast spots, they are welcome visitors. They are quite at home with the Juncos and Chickadees, and at first were content with picking up any loose grain on the snow but have now learned the easy way of life and are the last ones at the feeders at night.

Birds attract birds and once feeders are established, one may be sure of guests. Often in migration, birds stray from the flock. Last winter an

Arctic Towhee arrived during a blizzard and stayed with us almost six months. How we wished he had brought his mate; we would have cut the rent in half! Three Fox Sparrows stayed a week and a Rock Wren called on us several times.

All of us can have the pleasure of making friends with birds. They are such grateful creatures, very little trouble, and always return their "party" calls. One soon absorbs their cheerfulness and gaiety and it is such fun to watch their antics. Just clear off a place in the snow where grain and crumbs can be scattered; but, better still, make or buy a grain feeder. Either put suet in a wire container or tie it securely to the limb of a tree. They will soon find it. However, once feeders are established, they should be kept filled because the birds grow to depend upon the food and will often starve should the supply become exhausted.

DAFFY DILLS

by LEN SHOEMAKER

My mother called them daffy dills

In days of long ago,
When down the garden path with her
Each spring I'd often go.

She loved them dearly and, of course,
I learned to love them too,
Because they added charm to chores
That she and I must do.

And as they brightly smiled at me,
Somehow they seemed to say:
"God sends you from His bounteous
store

Sweet peace and joy, today.

Enjoy His love as here expressed
In us, your garden friends,
And we, in turn, will fill your days
With cheer until life ends."

Long years have passed—in memory
My heart quite often fills
With thoughts of boyhood days when
she
Raised golden daffodils.

GREEN THUMBS

MR. AND MRS. JOHN W. NEWMAN

Mr. and Mrs. John W. Newman who live at 5752 Newton St. grow all kinds of plants. Some they grow to sell but a lot more they grow just for fun. Mrs. Newman says "John can't resist a new or unusual plant if he sees it in a catalogue. He must have at least one." They have a great variety of exotics and tender plants which they keep in a small greenhouse.

Mr. Newman hybridizes a good many iris each year but keeps only a few which show promise of being very choice. It takes five years to develop a new iris. Through the years Mr. Newman has developed quite a few seedlings which he identifies by number since giving a new iris a name requires considerable detail.

Mr. Newman is looking forward to the time of his retirement from the Public School system when he can devote all his time to his garden, hybridizing and experimenting with new plants.

Mrs. Newman is Mr. Newman's helper in all his projects. She not only knows how to grow flowers but she knows how to handle them after they are grown and picked. She has a great deal of ability and know-how in making of corsages and flower arrangements.

Who loves a garden loves a greenhouse too.—Cowper, The Task.

The ads carried in the Green Thumb are for your convenience—when you buy, mention the Green Thumb to our advertisers.

"FAR AWAY PLACES" ARE SOUNDING OFF

BY ANNA TIMM

FROM the moment the first grubby lavender-grey parsley begins to push above its winter quarters near-at-hand and far-a-way trails keep calling. They will continue to call while the mountains change from the deep silent white to a blaze of new and old leaf bud and blossom colors, then back again to snow and the silence of winter. To the average listener a call to adventure and exploration in the mountains brings a resume of all the hair raising, unlovely horrors they have ever read or heard of or actually experienced! What an appalling waste of time and energy!

Far-a-way places in the mountains and foothills are so filled with a very special beauty and gentleness that there is no room for needless apprehension. Spend these precious moments in adequate preparedness prior to the start of a happy sojourn into high places. You will realize that therein lies the practical, sane answer to the problem of camping and mountain climbing. Following is a quotation from an article by George W. Kelly, editor of "The Green Thumb" which is found on the July page of his 1949 calendar. It briefly summarizes ways and means of knowing mountain climbing and camping and stresses the vital need of preparedness first, last and always:

"Our Untameable Mountains"

"These same mountains can be really dangerous for those who go to them unprepared. To the uninitiated the mountain climber takes great risks but the experienced mountaineer only tackles those things which he understands and is prepared for. A thorough realization of his own abilities and

strength, proper clothes and equipment and a knowledge of fundamental safety precautions is always necessary. Let us hope there will always be preserved some of the primitive places where we can go to renew our health and strength."

Because he is looking to the spiritual joy of association he passed by the more material item, food. A word regarding that commonplace "equipment" may be useful. Begin your food preparedness by washing and scouring all cooking and serving vessels at home where there is an abundance of hot water and clean towels. Wash, scrape and trim fresh fruits and vegetables, put in paper or cotton sacks or lid tight jars before leaving home. Keep cooking equipment covered with lids until time to use them. Plates, cups and flatware will travel nicely inside larger vessels. Never leave kettles or frying pans open while in process of cooking on an open camp fire. Do not take a chance on little dark "things" that will fall into open brew. You may be mistaken. It may not be "clean dirt".

Use onions, strong spices as well as heavy fats sparingly at high altitude. A good vegetable oil for frying and shortening is easier to live with, climbs better too! For a dinner easy to re-heat on camp fire the first meal and good for next should you be lucky enough to have any left, try Lentil Brew:

One 16 oz. pkg. of lentils will make 2 quarts, at least.

4 or 5 lb. ham shanke

1 cup cut-up celery stalks or pinch celery seed

1 small onion added last hour



Outline of a Program for Tree Care In Colorado

Care in planting: Select fresh, healthy nursery stock. Dig large holes. Plant properly. Be sure soil is good. Water in thoroughly. Cut back top. Stake or shade as necessary.

Careful maintenance: Thorough watering and cultivation. Fertilizing when needed. Controlling insect pests and diseases. Trimming for shape and prevention of storm and decay damage.

Considering and combatting, so far as possible, unnatural and unfavorable cultivated conditions: Lack of sufficient water from rain, snow, or irrigation. Lack of birds, destroying the "balance of nature" to control pests. Large plantings of one variety, making conditions favorable for the rapid spread of insects and diseases. Isolated trees, lacking the protection of the forest, from storms. Dry air and hot sun in Colorado which imported trees do not like. Freezing and thawing, and extreme warm and cold spells in spring. Smoky, dusty, and gas-filled air. "Contractors' soil", full of lime, plaster, bricks and subsoil. Change of level, fills and cuts. Hard-packed soils from traffic. Leakage from underground gas pipes. Damage from rubbing wires and careless linemen. Injuries from nails, wires, lawnmowers, autos, and pocket knives. Lack of natural leaf-mould to retain and conserve water, and to supply needed food when decayed.

Tree surgery as a cure for damage or neglect: Necessity for knowing how a tree grows, how and where the sap flows, how wounds heal, peculiar climatic conditions in Colorado.

Reasons for filling a cavity: Seal openings to keep out water and stop further decay. Provide suitable surface for cambium to grow over. Prevent entrance of rot-fungi spores and insects.

Boil ham and lentils in 2 quarts water over a slow heat three hours.

Cook desired amount of carrots separately in salted water.

Put into glass jars with fitted lids and add when brew is reheated.

Just before you announce, "Soup's on", add 1 tablespoon vinegar or lemon juice and 1 tablespoon chopped parsley.

Raw vegetables in salad or dill pickles sliced, fresh or canned fruit, cookies and jam or previously prepared jello are a good dessert for such a dinner.

Of course the lentil brew may be cooked in camp very successfully over a very low camp fire.

Happy camping! We'll be seeing you on far-a-way trails!—A. T.

SWEET PEAS

An Old French Gardener's Way of Growing Them

BY HELEN FOWLER

EACH year many of us have a rendezvous with the 17th of March the accepted date for planting sweet peas. The late spring this year has moved that date up a bit so get your seeds in at once if you have not already done so.

One of the prime essentials in sweet pea culture is the choice of an open, sunny location with plenty of light and air. Any soil that is well prepared to grow vegetables will give fairly good results, but today we are talking about something more than fair results.

Somebody or other years ago told me of an old French gardener's way of planting sweet peas. To start, the direction of the rows is important. It cannot always be done but best results seem to come from running the rows north and south so the sun at some time of the day can reach both sides of the plants. The usual shallow trench is not dug but one as deep as 18 inches to 2 feet—the deeper the trench the taller the vines and the better the blooms. Deep preparation not only promotes available fertility but increases the amount of area where food and moisture may be found and thus allows the plants to send feeding roots in all directions.

Soaking the seeds give better results: if planting is to be done on some Tuesday then soak the seeds Monday morning to give them a "head start." This helps germination. The top soil must be well pulverized and at the time the digging is done this soil should be piled on top along the trench so that it can be used for filling back in as planting proceeds. If horse manure can be obtained somewhere, get a few bushels for making

liquid fertilizer.* Pour this into the trench until saturated. When not too wet but only moist, the seeds should be planted and covered to a depth of two inches with the soil that has been thrown up on the side. It should be well firmed down and a seed planted every inch or so. It is a little tough from now on as the soil must be worked in around the peas by hand with the leaves only left uncovered. Every 2 inches of growth the same process is repeated until all the soil dug out of the trench has been put back—each time fresh manure water must be added.

If this method of growing sweet peas is followed you will have four huge blossoms on many stems and far more stems with three blossoms than two. Before very long you will find it necessary to stand on tip-toe to snip the blossoms.

Now thinning out—after the plants have started to grow but before they begin to throw out shoots they should be thinned to stand not two inches apart, nor four, but six. Toward the end of the row try even nine inches. If you give each plant room to grow you will be amazed at its fast growth and its luxuriant color.

Soon as the tendrils appear on the plants small twigs should be put in the ground for support and to prevent possible wind injury. Wire netting makes an excellent support, as it looks well before the vines cover it. The soil should be mulched (stirred) frequently and if later in dry weather it is necessary to give waterings they

*To Make Liquid Fertilizer—Place manure in the bottom of a barrel, preferably one with a spigot. Add water and apply when the strength of not-too-strong tea. A wide, flat pail is handy to use here for pouring the liquid into the trench.

should always be copious. The immediate removal of all faded flowers is most necessary in preserving a long period of bloom.

If you have trouble in securing stable manure try your dairy but if you cannot get it there nor any place else of course commercial fertilizer

may be used with nothing like the same results—with better results however than by just digging the trench and planting in the ordinary way, or as one poor grower suggests, "sowing seeds need not be in a trench but on the top of the ground covered with but an inch or so of soil."

WHY A MORTALITY GUARANTEE?

THIS question is logical, and definitely in the minds of all purchasers of nursery items, as well as the sellers.

A guarantee is a warranty that the sale of an item is all that it is represented to be; healthy, true to name, up to size specification, properly dug and prepared for delivery, with sufficient root system to reasonably support it, and of good symmetry. What else can a buyer expect or the seller offer? All of the above can be fulfilled, and yet the plant fails to survive. Why?

The answers to this are many and quite varied. Poor soil conditions, improper planting, over fertilization, non-cultivation, under or over-watering, improper placement, unseasonal planting, under or over-pruning; all summing up to proper care or culture. Where one, two, or possibly more of these conditions happen to a given plant, it is almost a surety the results add up to a sick plant, if not a dead one. But, what if most or practically all of these develop, as too frequently they do, (mostly through neglect or inexperience); then what happens? you guessed it—dead stock.

So much of this is beyond the control of the seller, once the stock is out of his hands, that reasonable consideration should be given the party from whom purchase was made, before making requests or demands relative to the mortality guarantee.

Practically all reliable nurseries do their utmost to see that the customer gets stock of the very best quality on delivery; consequently there should be a moral obligation on the part of the purchaser, to do his best in trying to see that the stock survives; and of consequence, the demands for mortality guarantee be lessened.

In case of loss, who can truthfully say where the fault lies—with the buyer or the seller? It is because of these uncertainties that a mortality guarantee enters into the sale.

Guarantees are also varied. A few sell without mortality guarantee of any kind; some assure purchasers they will replace free of charge, providing stock has had reasonable care; a very few give 100% mortality guarantee regardless of conditions, (but where these contracts are rendered, the price usually warrants same); and yet others prefer to sell on the replace at half price basis, which, all things considered, seems to be the basis of the fairest guarantee, each being liable to the other.

—CY DONIA

We invite suggestions on this important problem. Someone pays for a guarantee; and it looks very much as though the careful gardeners were paying a higher-than-necessary price to make up for the ignorance or carelessness of others.

EDITOR

I think that one would be a dub
 To find aught lovelier than a shrub.
 A shrub that may in springtime wear
 The loveliest blossoms everywhere.
 A shrubs that laughs at wind and
 weather
 And ties your house and lot together.
 Whose branches with their gracious
 span
 Mark comradeship with bird and man.
 A shrub that nestles by your wall
 And yields gay berries in the fall.
 Now parodies are crude, it's true,
 But shrubs deserve a poem, too.

—ELIZABETH H. PESMAN

(Who hopes that Joyce Kilmer would not mind.)

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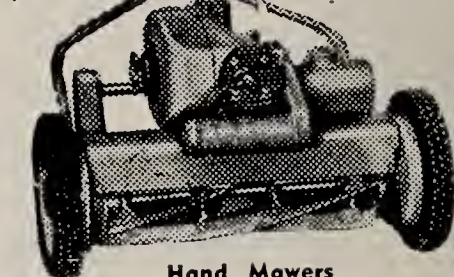
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APRIL GARDENING

APRIL is the in-between month. It's not quite spring, but there is evidence that winter may be losing its grip at times. We need to keep in mind that these April showers (or snows, in Colorado) may be good for the May flowers. We should take advantage of all the good weather when the ground is dry enough and get our transplanting of trees, shrubs and perennials done, but should not assume, from a few warm days that summer is here. Many things may need a mulch around their roots or a shade for their top for several weeks yet.

Learn to water for a definite reason. Routine watering may, at times, be actually harmful. Check up the moisture condition of your grounds, and give everything a good soaking if you do not find sufficient moisture in the soil. Different kinds of soil and different locations may make a great deal of difference, even in the same yard. Watering frequently and shallow, watering when the soil is already sufficiently wet, or overwatering may do more harm than good. A sprinkling over the lawn does make it look good, but it is bad to encourage the roots of grass to seek all their strength from near the surface of the soil by unnecessary watering.

Some things *must* be transplanted early if they are to be moved, while almost anything that needs to be brought in *may* be moved now. Get your orders in now for the new things that you need. Try your local nurserymen first, for they can get your new plants to you in much better shape than where they must be shipped a long distance.

Even the best of lawns will occasionally need some patching and thickening up in the spring. This work can be done any time after the

frost is out and before the hot weather of July. Work up some loose soil in the spots to be prepared, scatter on seed of the same kind as the existing lawn, rake very lightly, cover with a thin mulch of peat, manure or compost, and water as you would a new lawn for the next month. When seed is planted early it will not be as difficult to keep wet as in hot weather later, but it will be slower starting.

There is really not such a mystery about fertilizer. Chemical fertilizer, we know, is inclined to be quick acting and of short duration, but may be valuable when the plants are growing to give them necessary elements which may be deficient in the soil. Animal manure provides chemicals in a well-balanced amount which are gradually available, and it also supplies needed humus and mulch. The fresher it is the richer in chemicals it is, and the older it is the weaker, but safer, it is to handle. Leafmold, peat and compost would class with the older, well-rotted manure.

Most seedsmen indicate on the seed packet those seeds which may be planted before danger of frost is past, and those which will only germinate in warm soil. Since it is often risky to set out tender plants in Colorado until June, it is important to have seeds started indoors much before that time, so that there may be a longer season of bloom or fruit. Some slow-growing things may be started a couple of months before this time, but faster growing things such as Tomatoes or Zinnias may get large enough to be difficult to handle in six weeks. Sweet Peas may still be planted, even though St. Patrick's day may have gone by. It is worth while to prepare the bed well if good

bloom are desired. The smooth Garden Peas may be planted at any time, but the wrinkled kind must wait until the soil is a little warm.

Glads may be planted several weeks before the weather is settled. They should be rather deep at that time—6 to 8 inches. As perennials are usually moved with a little soil, this can be done at any time before considerable growth starts. Roses may

be set out at any time that they are received, if they are hilled up with soil to keep them from drying out until the new growth starts.

If you have too many night crawlers in your lawn they may be discouraged by scattering arsenate of lead on the surface and washing in. Your seedsman will probably recommend about a pound of lead to a hundred square feet.

A HINT FOR SEED-SOWERS

BY MAUD McCORMICK

NO MATTER how carefully you prepare a flat of sterile soil and sand, or sphagnum moss, or the very excellent new medium, vermiculite, you may get into trouble if you follow germination tables too closely. I did. My first seed-flat was a shallow box, lined out for fourteen rows of different kinds of seeds, each carefully labelled. Set into warm water until the top showed moisture, then covered with newspapers and burlap, the flat then sat in a protected kitchen window where the temperature was probably 65 or 70 degrees. I had been most careful not to cover the seeds too deeply.

Unfortunately, I had followed a reliable germination table which stated that the fourteen kinds of seed I sowed would germinate in from three to five days. On the third day, one row showed the fine white marks of seed germinating at regular intervals. Uncovered, that row was green by the next day and no others showed any signs of germinating. Consequently, I had to resort to a complex kind of strip-gardening, narrow burlap pieces cut to shade rows where no sign of emergence appeared. By the end of two weeks, all seeds were up, but the first plants were large enough to shade the late arrivals and

moving them to more commodious quarters without disturbing the tiny seedlings required patience, time, and a four-pronged table-fork.

The moral? Keep different kinds of seed separate, if possible. Small seed-pans for each variety are best. Reliable germination tables are a help, but they cannot take into consideration many things that affect seeds, notably the age of the seed, the moisture, depth of planting, warmth of soil. Zinnias in a warm soil come up almost as soon as they are watered in. Delphiniums germinate best in soil-temperatures likely to rot zinnia seed. Right now, delphinium and larkspur seed, pansies, scabiosas, sweet-pea and snapdragons can be sown in outside seed-beds to endure snow and freezes and be ready to come up by the end of the month. Many of them are better for a winter in hard-frozen ground. Most annuals can be sown in flats before the end of March to be ready for transplanting the latter part of May. Among these are morning glories, salpiglossis, nicotiana, asters and many others. Unless you want zinnias and marigolds with spring flowers instead of later in the summer, you can wait another month to sow their seed, or even sow in the open ground late in May.



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SEEDS AND SEASONS

By FRANCES BINKLEY

GARDENERS who now busily make seed lists, from catalogues or garden books, or last year's want lists, may well set a limit by figuring the space these seeds will take a-growing. Gardeners sometimes have the same trouble as the amateur cook who undertakes to boil rice and finds it expanding to larger and larger ket-tles. A few tiny packets of seeds brought from the seed store will, when planted in flats and pans, easily fill all your window sills. And later, when pricked out and set two inches apart to await warm weather, plants in flats and pans will encroach on chairs and tables in sunny spots all about the house.

A space-saving device is to plant in stages, according to the germinating habits of the seeds, and in this way planting may be going on practically all year. Some seeds may go into the ground out of doors in late fall or very early spring, so they may be affected by freezing and thawing. Some may be started in flats, put out to freeze, and brought into the house again for special handling, during the spring. Many seeds do best if held back until the ground is well warmed, in May, and some may be started in mid-summer, to come into bloom the following year.

Dormancy in seeds is a problem full of mysteries. Light and chemical action have their affect on germination, as well as moisture and warmth. The gardener who is not a specialist may sort out his seeds roughly into three lots: 1) the quickies that spring out of the ground within a week or so after planting, 2) the slow and careful group, and 3) the really reluctant sleepy-heads that require a special ritual of freezing and thawing

to bring them out of the dormant state.

The first group include many of the garden annuals, and others also such as the Pansies. They like a warm soil, and need not be started in the house or the cold frame except to get a head start for early bloom.

Petunias and Snapdragons belong to the second group of slow-and-careful. They are a little slow to germinate, so that seeds started in March will produce plants ready to set out in late May, for summer bloom. Delphiniums and Primroses started in March may reach blooming stage the first summer. Very tiny seeds, such as those of the Petunias, are more easily taken care of if planted in flats or pans in the house, since much may happen out of doors, in a month's germinating period, in the way of drying out or blowing about.

The third group, the reluctant seeds, include those of trees and shrubs as well as some of the hardy perennials. They often have water-proof shells that must be treated in some way before moisture penetrates so that growth may start. Nature's method is the freezing and thawing that occurs with outdoor planting over winter. Gardeners try to imitate this in the procedure known as stratifying, and a recent method is to freeze seeds in ice cubes, in the kitchen refrigerator, before planting. Large seeds may be nicked with a knife, or rubbed with fine sandpaper, to let the moisture through the hard shell. Seeds of this sort are best planted in an out-of-the-way corner—kept watered through the summer and otherwise forgotten. They may start growing weeks or months, even several years after planting.

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MAY SCHEDULE

- MAY 1, Sunday, 8 A.M. Wild Flower Trip to American City and Apex. Register several days in advance so that transportation can be arranged. Led by Mary Lou Cox.
- MAY 5, Thursday, 8 P.M. Evans School—Nature Institute. "Methods of Teaching Nature" demonstrations and explanations by many who have worked out good ideas. Program arranged by Geo. W. Kelly.
- MAY 6, Friday, 7:45 P.M. Horticulture House "Street Trees," by Mrs. A. L. Barbour.
- MAY 7, Saturday, 1-6 P.M. Nature Institute Wildflower and Nature Hike to Colorado Silver Cedar Botanical Reserve North of Stapleton Drive. Cars needed. Meet at Horticulture House, 1 P.M. Reservations must be in to Tabor 3410 at least two days in advance. Trip arranged by Geo. W. Kelly.
- MAY 12, Thursday, 8 P.M. Horticulture House, Rose Society.
- MAY 13, Friday, 8 P.M. Evans School. Wildflower Kodachromes by Harold Roberts.
- MAY 15, Sunday 9 A.M.-4 P.M. Nature Trip to Plainview, led by Glenn Gebhardt and Paul Nesbit. Transportation by car and train. Bring lunch and canteen. Reservations must be made at Tabor 3410 at least two days in advance.
- MAY 18, Wednesday, 8 P.M. Horticulture House, Commercial Men's Meeting.
- MAY 19, Thursday, 8 P.M. City Park Museum. A demonstration of the helps for teaching Nature available at the museum, by Robert J. Niedrach and helpers.
- MAY 20, Friday, 7:45 P.M. Horticulture House. "Spraying and Dusting for Home Grounds" by Paul Morrow.
- MAY 21, Saturday, 1-9:30 P.M. Nature Trip and Demonstration Campfire, led by Henrietta Kelso and many others. From Lookout Mountain and the east end of the Beaver Brook Trail. Meet at Horticulture House 1 P.M. Bring your own food—something ready to eat or easily prepared. Coffee furnished.
- MAY 22, Sunday, 8 A.M. Horticulture House. "Wildflowers On the Plains," led by Annette Patton. Call Tabor 3410 at least two days in advance to make transportation reservations.
- MAY 27, Friday, 7:45 P.M. Horticulture House. "Insects," by Earl Sinnamon.
- MAY 28, Saturday through June 5, Sunday. It is planned to explore and collect plants in the little-known Paradox Valley.

The Green Thumb

Vol. 6

MAY, 1949

No. 5

The cover picture is a view of the terrace at the home of Mr. and Mrs. Gilbert Bucknum, and was taken by the owner. It illustrates our theme of closer integration of house with garden.

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*The flower panels on Pages 18, 19, 22 and 35 are made up of the most popular perennials and annuals as indicated by a vote of local experts. They were drawn especially for “The Green Thumb”
by Lucia Emily Wallace.*

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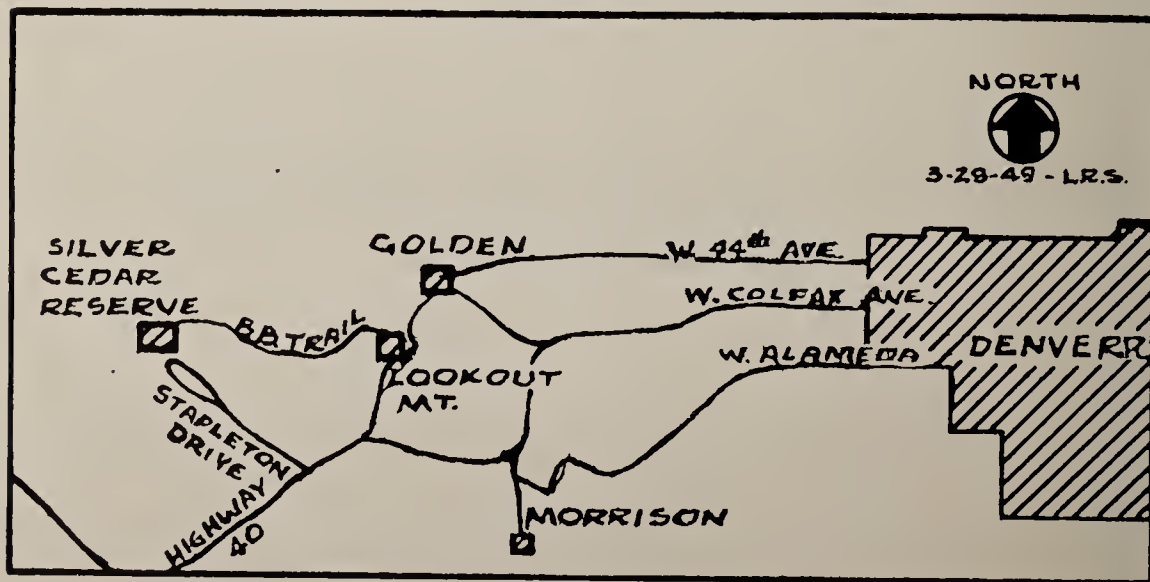
The Beaver Brook Trail



By **GEORGE W. KELLY**

I WOULD like to introduce this beautiful trail to more people in the Denver area. It is very accessible and easy to travel on. It runs through country which is very attractive at all seasons of the year.

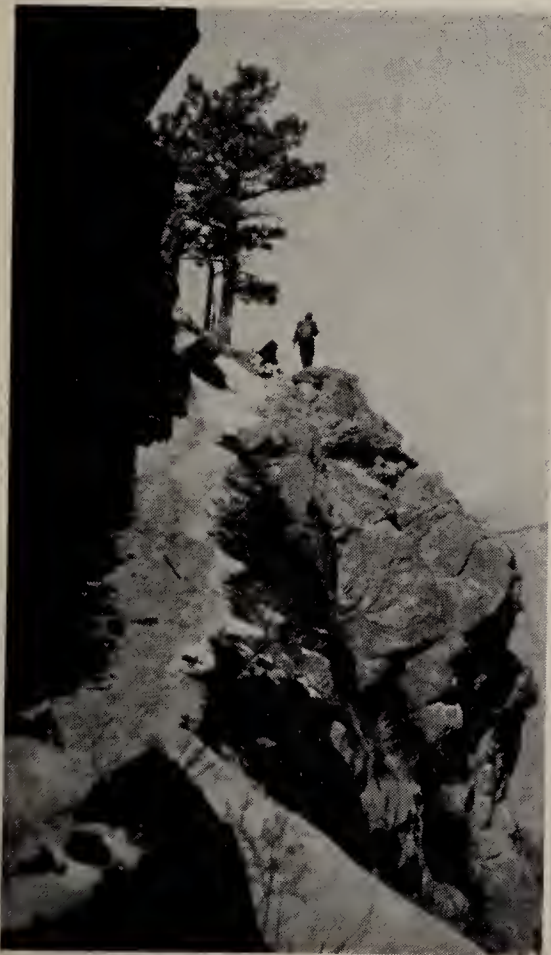
Driving from Denver we go first through Golden and half way up the Lookout Mountain Highway where we park our cars at Windy Saddle. Here the trail begins and winds around the north side of the hills in a westerly direction. For most of the eight miles of its length it is laid out on the contour, with very little grade, but where it crosses Rilliet Gulch or drops down to follow Beaver Brook



there is a steeper grade for a short distance.

As we start at Windy Saddle the trail is on the open slope, but it soon runs into the timber. This is largely Douglas Fir, but farther along there are slopes spotted with Ponderosa Pine or rather open hillsides with scattered Colorado Cedars. Every half mile or so along the trail there is a rocky lookout where we can look down to Clear Creek far below, to the snowcapped James Peak group of mountains or back to our starting point at Windy Saddle.

In May the wildflowers are at their best. Almost anything native at this altitude may be seen somewhere along the trail. Tucked under a large rock may be a group of the dainty Rock Ferns; hanging out from a crack in the ledge above us is a beautiful specimen of the mockorange-like Jamesia;



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sprawling over a moist, cool bank may be the delicate and lovely Alpine Clematis, a group of white violets, and masses of yellow arnica.

If we become thirsty there are crystal cold springs at convenient places not too far apart along the way. If a storm should come up, or if we wish to spend the night, there are several rock overhangs or "caves" close by.

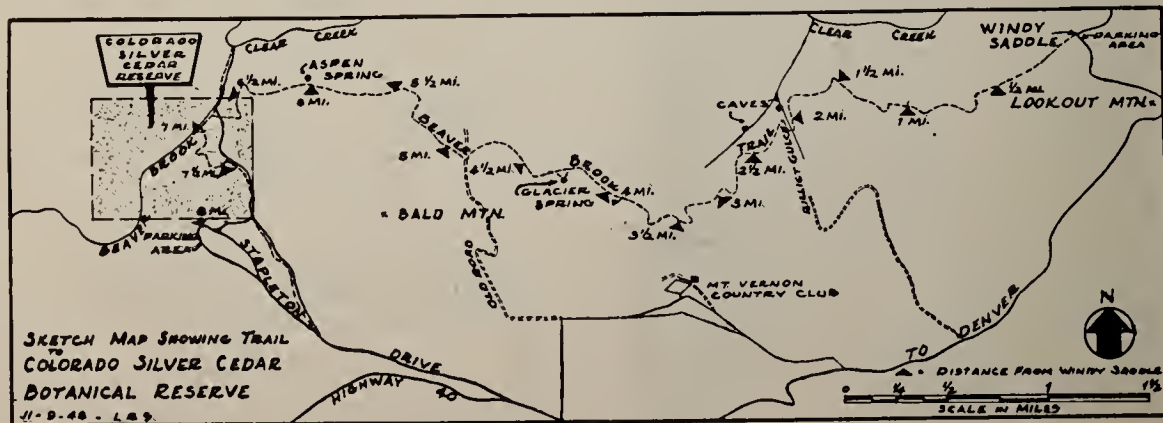
About two miles out is Lover's Leap, a rocky outlook which has many legends told about it. Near the three-mile point we may come out of the unspoiled ponderosa forest into a warm sunny open park on the ridge. Then for several miles the trail alternately winds through dense stands of Pine and Fir or across open meadows, sloping down to Clear Creek. The

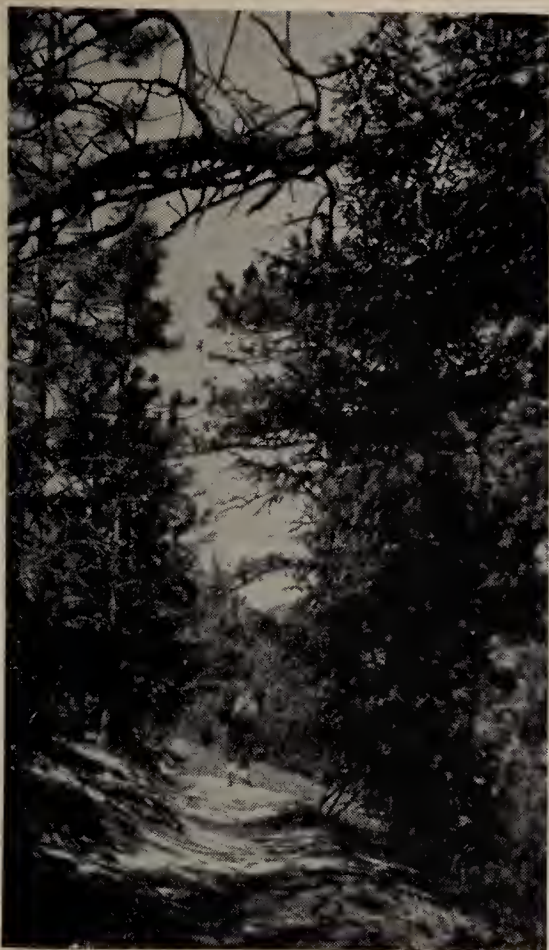
last two miles from the west end runs through the recently dedicated Silver Cedar Botanical reserve, where it is planned to keep many of the plants labeled for easy identification.

We end up our hike at the far end of Stapleton drive, where the less ambitious members of our party have our car waiting.

After travelling this trail we have great respect and appreciation for those pioneers in the Colorado Mountain Club who had the vision and energy to lay out the interesting route. Much of its length has been unused for many years, but through the efforts of groups of Camp Fire Girls, Boy Scouts and Girl Scouts it has been relocated and cleared for use.

When that restless feeling strikes





you and there is no chance of getting away from the job, drive out here after dinner and watch the lights of Denver from the top of one of these hills, or drive out early and eat your breakfast as the sun comes up. You will learn to love this country as all of us do who have been coming here for many years.



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WHY NOT AN HERB GARDEN

By FRANCES BINKLEY

THE fragrant, familiar sagebrush, native of the west, gives us a strong hint that Colorado might be a fine place for the gardener to try other aromatic plants, both gray-leaved and green. While special circumstances are necessary to make an herb garden into a profitable commercial enterprise, there is no hobby more rewarding in terms of pleasure than a collection of these plants, useful for the kitchen, many of them, and all associated with a rich background of tradition and lore that is full of interest for the armchair gardener.

The beginnings of an herb garden may be made from easily started annual plants, and during the summer perennials may be propagated, to fill in the beds next year. Borage and dill for tall green plants, sweet basil and caraway for medium heights, and parsley, chives, coriander and marjoram may all be started this spring, along with the home vegetable garden. Some of the old-fashioned garden flowers are classified as herbs, so that it is not violating any rule of herb gardening to fill in an herb garden design with the bright flowers of clove pink, pot marigold, feverfew or primrose.

The design of the beds is one of the traditional pleasures of the herb garden, for since one needs only a few plants of each sort of herb, the garden naturally develops in a series of small beds, or rows of contrasting foliage. The intricate inter-weaving of one of the Elizabethan knot gardens may be copied. If the site is sloping, a series of little terraces may be used, and these provide a place for thyme and germander to tumble attractively over the edges. A level garden, on the

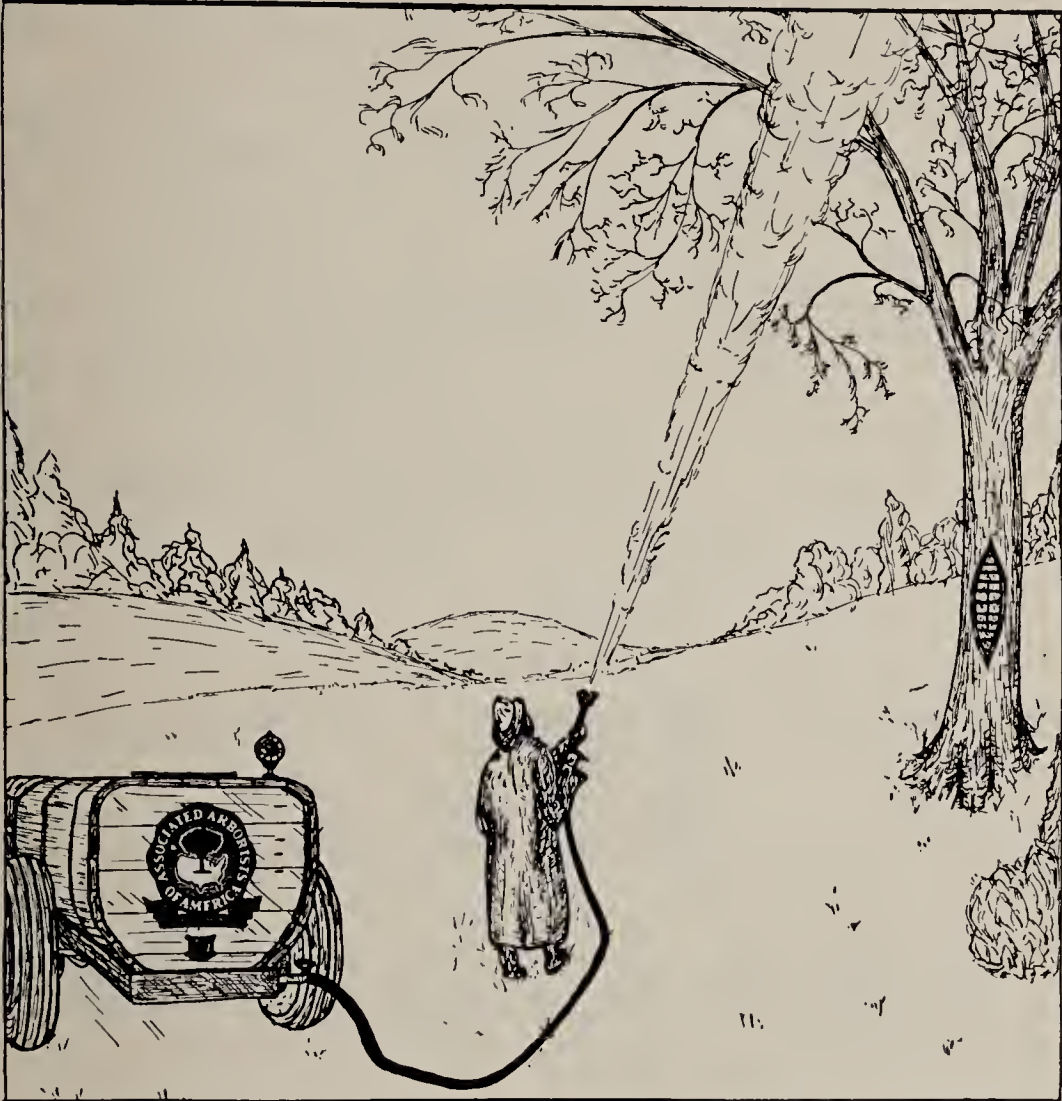
other hand, may be developed at the foot of a slope or terrace, so that the design may be viewed from above.

Most of the fragrant herbs require an open, sunny place. For shade-loving individuals, such as sweet woodruff or angelica, a wall or row of taller shrubs at the south or west edge of the garden will provide a shady area. A poor soil produces the most flavorsome plants, and no manure should be added. Compost may be dug in during early spring if crowding plants exhaust the soil after a long period. The chives stand as an exception here, for they require a rich soil, and may have to be relegated to the vegetable garden.

Two cousins of our sage brush at once claim a place in the herb garden. Tarragon, fine for flavoring salad vinegar, does not set seeds, so the gardener must begin with clones. *Artemisia frigida*, whose silvery, fern-shaped leaves are now uncurling in velvety tufts as the snow melts, may be dug in waste fields in almost any part of Colorado. Garden sage, which is no relation, comes readily from seeds and makes an attractive two-foot gray hedge, with lavender flowers in mid-summer. Hyssop and germander make lower, dark green edgings, with blue and pink flowers. Germander is best propagated by division, but hyssop, started from seed, will bloom the first season.

The low-growing *lavandula vera* is perhaps better here in Colorado than the taller varieties of lavender, and is equally fragrant. The gray, woolly Betony, apple mint, and lemon balm all tend to spread rapidly, so that the herb gardener need never be at a loss for spicy, fragrant plants to fill in his beds.

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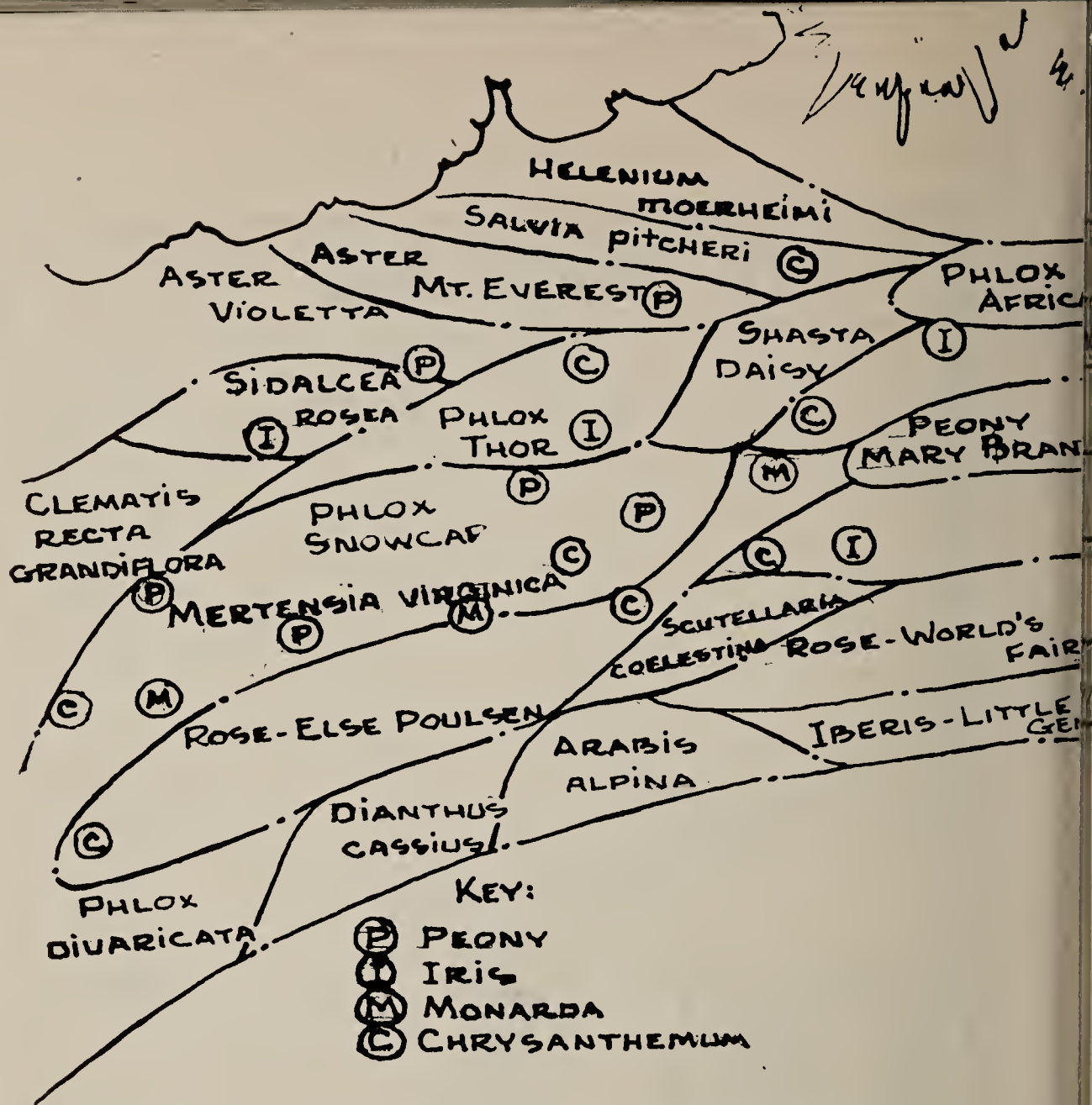
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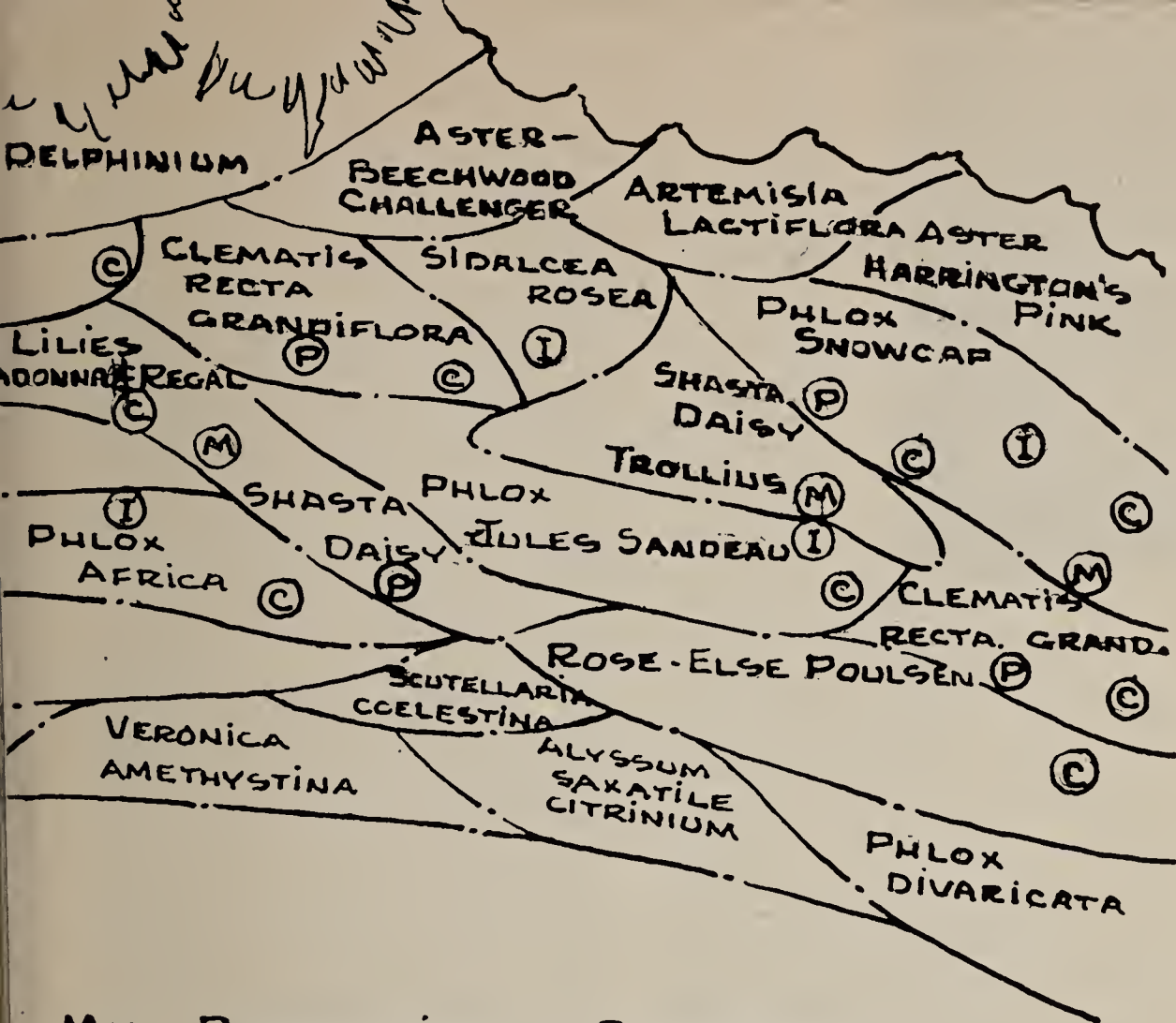
By KATHLEEN MARRIAGE

WHAT is a herbaceous perennial? It is no disgrace not to know, but just in case some reader thinks so: a herbaceous perennial is a plant whose flower stems persist only long enough to allow development of seeds and whose roots may live for several years.

This living for years suggests stability and dependability, qualities which endear them to us and are responsible by their very permanence for pleasant associations. Those red peonies or this lily of the valley we are growing probably because we associate them with the joyous days of

youth from which time has erased all unpleasantness.

Perennials are at their best in a big bold planting with a dense, high background of trees or shrubs or both, seen across a wide expanse of green-sward. All this green depth permits us to take liberties with color that might produce tragic results in conflict with a bare wall, a bare driveway or patches of sunlight on bare earth. The first requirement is a green backdrop. For quantity and continuity of bloom our border must face the sun for at least half the day, longer in midsummer.



MY PERENNIAL GARDEN

It seems scarcely necessary to warn real gardeners, or anyone with cultivated taste, against planting a bed of perennials or of any flowers as an island in an open expanse of lawn. Fortunately, these mid-Victorian geometrical atrocities are as passé as a Model T Ford.

Preparation of soil? Choice of material? Perhaps we may discuss here one perennial bed we made which is rather pleasant to look at and requires minimum maintenance. The bed faces south, is 45 feet long, about 8 feet wide, has a background of dense shrubs and evergreens which also form a screen from rear alley, and a 50-foot width of lawn between living room windows and front of bed. Top soil was rather poor on a gravel subsoil. Drainage was good but nutrients and humus were inadequate. We "double dug" the bed about 15 inches

deep putting a 4-inch layer of manure in the bottom and incorporating a 3-inch layer of rotted dairy manure, compost and peatmoss in the surface, tamping and moistening each three inches of fill. Sufficient of the bottom soil was removed to allow for the new additions.

Choice of plants? We wanted bold masses for good display — "gobs of vulgar flowers"—also gentler yellows and pinks for cutting. For a central bang we have Tulip Grenadier, 150 of them, in front of a group of Juniper monosperma. Then softening in color outwards are pink Darwins Prunus and Clara Butt, eastward; yellows — Mrs. Moon, Inglescombe Yellow and Ellen Willmott—a must for its fragrance—westward all in self drifts of 50 to 75 of each. At the outer ends are groups of Carrara and Foam, our favorite for cutting. Be-



*Peonies,
demonstrat-
ing the
effectiveness
of mass
planting.*

hind and between yellow tulips are groups of *Trollius europaeus*; near pinks are drifts of blue *Mertensia virginica*. These combinations make a really gay show in late May. Following tulip season a central interest is maintained, still red, by a group of four Peony Mary Brand. At four-foot intervals outwards are Peonies Therese and Walter Faxon chosen for their warm non-fading pink, and near the outer ends Peonies Nellie and Marie Jaquin, so arrangeable as cut flowers.

Following Peony season the central attraction is a group of a dozen or so *Delphiniums*, Millicent Blackmore in the middle softening outwards to mid-blue Pacific hybrids—still farther out a few *Belladonna* for cutting. Groups of *Iris*es at regular intervals give repetition both of distinctive flower and foliage which fill the gap between tulip time and peonies: Red Amber and the Red Douglas towards the center, next Ola Kola and Prairie Sunset, and near the ends Elmohr and Blue Shimmer.

Before the last peony has gone a few groups of Madonna Lilies followed by Regals give a cool, dignified air until phloxes are ready to begin. I'm sorry for the people who don't like these summer phloxes. They have not the airy grace of columbines nor the dignity of lilies but they have persistence in keeping on the job. If

seeds are prevented forming, not—mind you—cut off when they have half matured, the late summer lateral flowers are even more enjoyable than the big first heads.

Of course it is important to select good clear colors. After our Mary Brand Peonies we have Phlox Africa, fifteen of them in the center and following the same tailing-off pattern as with tulips and peonies are pink Phloxes Thor westward and Jules Sandeau eastward, finishing up with that best of all whites, Snowcap, originated by the late Darwin Andrews.

Since phloxes incline to be solid looking we have groups of Shasta Daisies, *Sidalcea rosea* and *Clematis recta grandiflora* between and near them to loosen them.

In the telling we've left out the part of the bed which we planted first, the back. Going out eastward from our central spires of *delphinium* are Aster Beechwood Challenger, *Artemisia lactiflora* and for a solid build-up at the end a good big wad of Aster Harrington's Pink. Westward are *Helenium moerheimi*, *Salvia pitcheri*, Aster Mt. Everest with last at the end a fat bulge of Aster Violetta.

Towards the front are two groups of *Scutellaria coelestina* to bring their blue spikes to the August sag. This sag can now be filled with azalea-mums, but since these are so insistent on hiding every leaf with their blowsy blooms I prefer their room to their company. Polyantha roses, World's Fair and Else Poulsen, keep up the tune through August and September until the self-respecting real chrysanthemums bloom.

These are chiefly bronzes and reddish browns: Santa Claus, Mars, Indian Summer and Firelight with the yellows. Algonquin and Golden Lace to light them. Yes, I know what's coming. "Isn't the bed terribly crowded?" It is, but do you remem-

ber the food we put into this soil? Their pantry is well stocked. Then in planting for continuity as well as for mass we selected things that complement each other in bulk, and in time, for instance when *Mertensia virginica* disappears completely phloxes are cheek by jowl with her ready to fill the space. Near trollius also are phloxes, *sidalcea* and so on. Perennials are planted spang on top of tulips and these tulips are not dug up every year. It is surprising how many years tulips go on producing good flowers when there's good rich soil to feed the new baby bulbs each year. By the time tulip leaves are becoming unbeautiful new tops of perennials are coming up to hide them.

Since this bed is a unit, a self border strung along its front is not necessary, so we have a series of low growing things here that give continuity and color. Earliest are *Alyssum saxatile citrinum*, *Arabis alpina*, followed soon by *Iberis Little Gem* and a few lakes of *Phlox subulata lilacina*. Nearby is a group of *Phlox divaricata* beside a patch of dwarf *Dianthus cassinus* and *Veronica amethystina*. Between and immediately behind these front groups we like to have *Petunia Cheerful* or *Salmon Queen*. These are more friendly towards the warm pinks of our phloxes and *Polyantha* Roses than are the rosy shades.

For the first season, and later in gaps occasioned by recent division or mortality we filled up the gap in space and the August sag with annuals: pink and blue larkspur, *Zinnia Old Rose* and *Enchantress* and with biennials *Suttons Campanula calycanthenia* pink, lavender as well as a few of the glowing purples for carrying effect.

The late summer sag is not quite so hollow if we keep our polyantha roses groomed and fed. Also dividing of

Shasta Daisies both late and early instead of all at one time lengthens their blooming season well through August, and our stand-by phloxes go on till frost.

One temptation hard to resist is the urge to include a long list of varieties that we have seen and made notes to buy and plant. A legitimate ambition, but we really must refrain from cluttering up this design with them, so we planted them in a trial bed in the cutting garden. In this bed which we see every time we look out from our living room we wanted to avoid a spotty appearance so in no case did we plant less than five plants of a kind (except peony varieties) and for the larger key masses ten to fifteen.

For repetition, so necessary to good design whether of a fugue or a flower garden, we used *Monarda Cambridge Scarlet* confessedly with trepidation for its form has no dignity but its warm color and tirelessness in flowering make it desirable. In a more intimate bed seen at close quarters we might not have dared this.

Now all this bed needs is weeding, cultivating and frequent grooming. Cultivating is easy since we keep a mulch of peatmoss on the surface. There is little room for weeds. Grooming frequently: cutting off fading—not faded—flower stems, staking before its need becomes apparent does much for the attractive appearance of the garden.

Such a perennial garden is easily maintained, but no garden will maintain itself without making some demands on its owner. Now with all this boasting, the bed at this moment needs weeding and edging. There are chrysanthemums to be divided. Assters to be thinned, self-sown Canterbury Bells and *Sidalcea* for which to find a kind home. Better I stop this futile scribbling and get to work.

HISTORY MAKES OLD FAVORITES GLAMOROUS

By FRANCES BINKLEY

NEW light on favorite perennials, and new ideas for using them in the garden reward the curious plant man who takes a look at their family history. Few of the regulars of the perennial border are new or native; many of them have developed through centuries of cultivation, and they represent, as they stand in their flowery beds, the accumulation of a vast amount of adventure and strange experience.

The peony, for example, that opulent symbol of spring in the gardens of China, came to us long ago, as an aristocrat of cultivated plants. We think best to transplant peonies in the late Fall, but for a thousand years Chinese gardeners, following traditional cultural practices, have balled the roots in mud and offered them for sale at the blooming season. Perhaps we have the best of it in scientific horticulture—but how about the ancient Chinese plan of growing peonies in raised beds or terraces, so that when you walk along the garden path you meet these magnificent blossoms at eye level? There you have an idea worth setting down in the notebook on garden design!

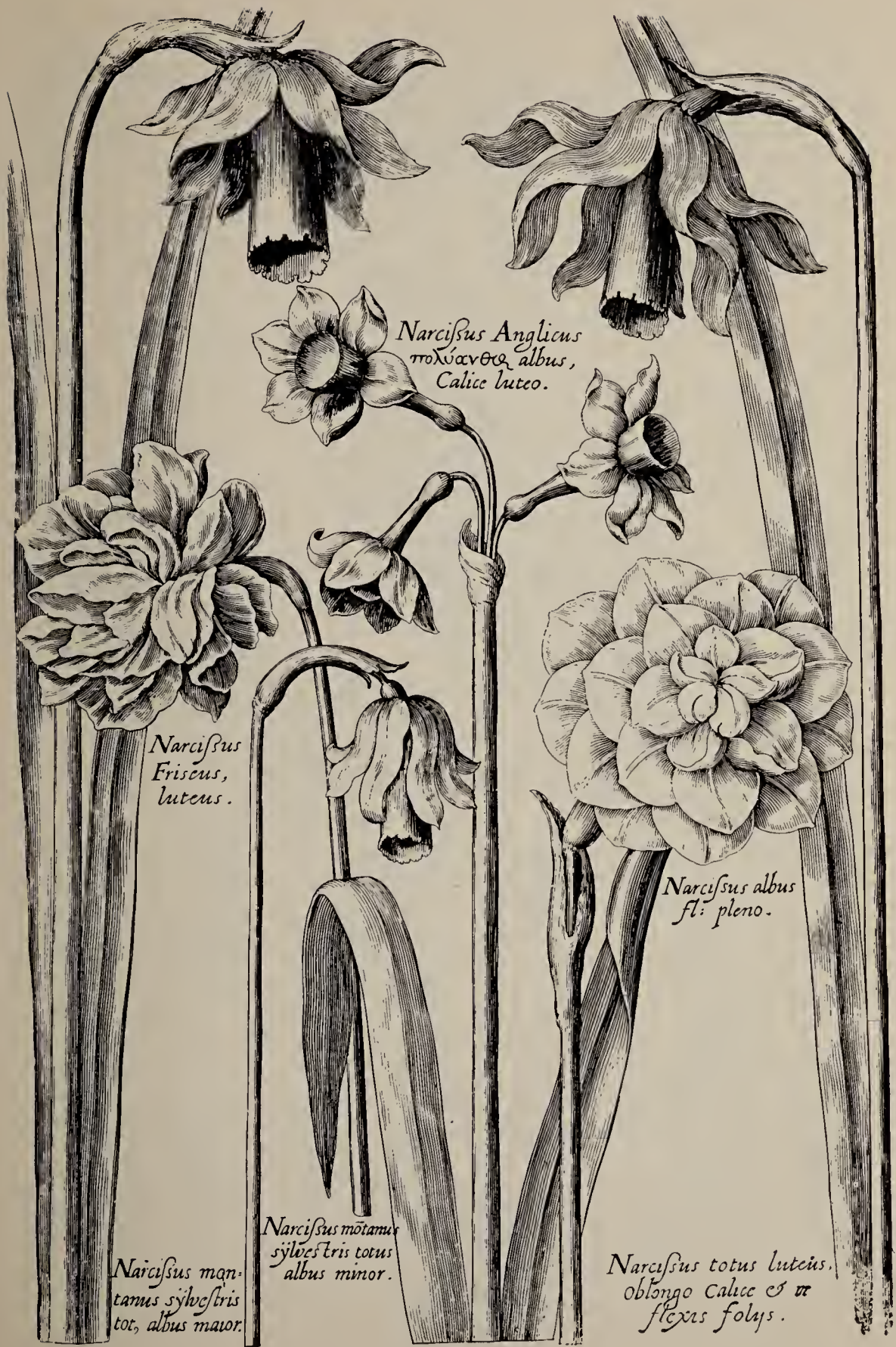
A *Silver Moon* rose winter-killed one severe season, as Richardson Wright tells the tale. He wondered about this unexpected tenderness, and tracing the history of the plant he noted one parent was *Wichuraiana*, the hardy trailing rose which came to Europe in 1880 from Japan. But when he came to the other parent he found the tender strain. *Cherokee* is a tender, south-China rose, first grown in England in 1759 and later brought to America. François André Michau found it on the south Atlantic coast

in 1803, thought it a native, and sent it back to Edinburgh. Here, in the history of the *Silver Moon's* ancestry, lay the explanation of its weakness.

When the sweetly fragrant *Viburnum Carlesi* was introduced from Korea, it was grown here as a woodland plant, and very bad reports came of it. But the collector's notes show that this *Viburnum* came from rocky, windswept ridges. Its history suggests it would be better pleased with an open location and a well-drained soil than with woodland conditions as first thought. So it is that the past as well as the present counts in growing plants.

There is something ritualistic about gardening, as we follow the changing demands of the seasons, and the backyard gardener may enjoy a friendly sense of being right in there with the great gardeners of the past, when he goes through his spring routines of digging and planting. Many of the plants he grows are the same as those grown long ago in the gardens of Persia, Rome, or Carthage. It is wonderful to think that we have in our gardens this unbroken link with the past. While we may know little else of the Asia Minor of two thousand years ago, we would have at least a common understanding on garden

These cuts are taken from a book in the library of Horticulture House entitled "Florilegium Renovatum et Auctum" published in 1641. The book was given to the Helen Fowler Library by Miss Florence Martin in memory of Louise B. Kountze. The book, compiled by Matthaeus Merianus, is dedicated to his honored master and patron, Herrn Johann Schwinden, "honorably reigning elder mayor of the free Reichs Wahl-Stadt Frankfurt am Main."



flowers, if we were magically transported back to that time. For we would see roses, and lilies, and the tulip species would be there too, looking much like our own little sand lilies in the field.

Gardeners of all times have a certain common fellowship. We today can sympathize with Pliny's plans for a quiet retreat in his garden at Laurentum as we can with Jefferson's plans for his garden and round-about walk at Monticello. Certainly Thomas Jefferson, competing with his neighbors for the first green peas of summer, and exchanging seeds with friends in many places, is recognizable as a fellow gardener. He had some good ideas about ground covers, too. We have a sneaking regard for naughty Mary Pinckney, also, who took cuttings in the botanical garden at Leyden behind the very back of the irascible curator in his satin coat and powdered wig, while her husband was about his diplomatic business.

When we consider the traveled background of common flowers of our borders, such as the Foxgloves, Hollyhocks, Narcissus, Chrysanthemums and others, and think of their long experience in cultivation — centuries for many of them—we may well view them with a fresh respect and interest. Asia was the home of a vast number of the plants we now claim as our own old-fashioned flowers. They were brought to Europe and to England by curious travelers, by noblemen on diplomatic missions, or by soldiers from the Crusades.

In troubled, violent times the walled gardens of the monastery or the castle preserved the cultivated strains that might otherwise have been lost. Here the native wildflowers grew along with the new plants from distant lands. The *Millefleur* tapestries of the times show us the primroses, strawberries, pansies, periwinkles, vio-

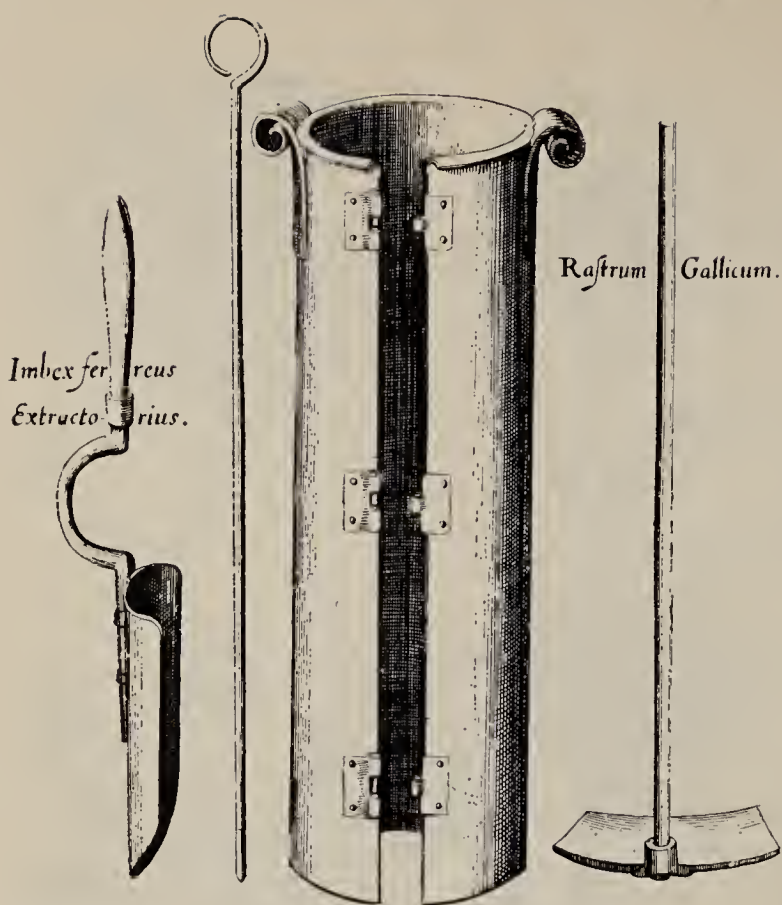
lets, snapdragons and Canterbury bells, growing in the long grass, under the orchard of flowering plums, apples and pears. The flowers were single, small, thin and fine—excellent subjects for the delicate drawings that bordered the manuscripts of these times.

Affectionate names show the old favorites: bachelor's-buttons, sweet williams, heartease, and sops-in-wine. And then there were what that early herbalist, Parkinson, called the 'outlandish' flowers: the tulips, sent back to Vienna from Turkey by an observant envoy; syringa from southeast Europe and Persia; dahlias, cosmos and marigolds from new Spain, the sweet pea from Sicily. It was 1200 years since T'ao Ch'ien made himself famous in China by rejecting public office in order to enjoy his chrysanthemums. Yet when this flower-symbol of joviality, the companion of wine and song, was introduced to Europe it attracted little interest, so great was the excitement over tulips and the gambling in the rare bulbs.

The garden pinks seem to have greater elegance in our borders when we recall the days of their popularity and rarity, when dandies of the Renaissance would have portraits painted posing with one of the fragrant blossoms daintily held between finger and thumb. Their splendid pinks—seem from contemporary paintings to be nearer the size of our Plumarius than to the greenhouse carnations of our day. Yet they developed into better blooms in time and the Italian Mediterranean shores became the center for vast commercial gardens.

It was with the beginning of our scientific age, when greenhouses had been built for growing the tender exotics, that new favorites swept to first place in popular interest. For then expeditions might be sent to the tropics for all manner of new plants which





So we think we are modern! A couple of years ago a remarkable device was introduced for transplanting, which consisted of an open tube, enabling the gardener to remove the plant from the earth without root injury. The above picture was taken from a book published in 1641. The Editor has no comment.

could be grown in the north with the newly devised protection. The orchid boom almost rivaled the history of Dutch tulips in the preceding century. The chrysanthemums at last came into their own, and the pelargoniums and lobelias were prominent in flower lists.

In the work of Robert Fortune, who went four times to China, the hunting of new flowering plants reached a peak for a time—but that is another story. Foreigners were not welcome in China in the first half of the nineteenth century. Fortune disguised himself as a Chinese, wore a pigtail and native dress, and made his way about the country. To him we owe our bleeding heart, Wiegela

rosea, *Prunus triloba*, *Deutzia scabra*, *Primula japonica* and many others. He made an exhaustive collection of the flowering plants already cultivated in China.

It is impossible to separate our view of these plants as we know them in our own gardens, from a sense of their long history in distant lands, or to fail to associate them with the enterprise and daring of the plant hunters who sought them out and the patience of the gardeners who introduced them. And with these long associations in mind, we cannot but look with added interest and excitement at our flower borders and see them as bulbs in the chain of past to future.



[illegible]

"DEAR GUS"

May 1, 1949

JOHN and I have some important questions to ask you. As you know we have been contemplating for some time the purchase of a house. Well, it finally happened. We found a lovely house and moved about two weeks ago. After considerable work inside we are settled and enjoying the new place.

Now we are beginning to wonder what to do at this late date with the outside yard. Nothing is planted—no trees, shrubs or flowers, nor is the lawn started. The soil is lumpy and heavy. The weeds are beginning to grow. Our neighbors hauled in some manure early in April and have planted shrubs, roses and trees, but many of their plants are yellow and sickly looking and some are already dead.

John went to a nursery to inquire about shrubs and trees, but most plants are so far advanced in growth that it seems doubtful that they could be successfully moved at this late date. There are, of course, plants growing in large containers which can be moved and planted now, but after buying the house and tending to the many details of the interior furnishings, there just is not enough money left to do the yard properly at this time. But I must have some flowers around the house this summer. This would help to keep the weeds, and also the dust, down.

What would you suggest that we do? I hope that you can give us some information to help us now and later.

MARY.

June 3, 1949

Dear John and Mary:

Congratulations, proud home owners. The planning that you have done for years to reach this goal should be of great value, leading to the final accomplishment—your "House Beautiful."

You are right. It is quite late in the season to do a finished job of landscaping, unless you want to go to the considerable expense of obtaining plants and soils suitable, at this time, for the job.

My advice to you is to lay the foundation for a later garden now, by building up the soil and getting acquainted with your particular soil. As Mary has already stated the earth is lumpy and looks hard. This indicates a heavy soil, generally lacking in organic matter. The porosity of the soil is undoubtedly poor, and aeration may also be poor and inadequate.

The soil, in the places where you intend to grow flowers this summer, can be lightened by adding sand. Do not spare this material, but be liberal. Addition of sand to heavy soil helps moisture to permeate more deeply and gives more thorough aeration. Workability of such prepared soils is easier and therefore more pleasant in years to come. A medium coarse sand is the best. This is obtainable from dealers in building materials.

Avoid the use of manures and other organic matter at planting time. Such material can be used to greater advantage later in the season (fall), and is a great soil builder when used at that time. Manure and other organic matter can be safely used as a soil builder at this time, for the lawn that you will seed in early September.

The cause of the new plantings of your neighbor's turning yellow, may

easily be due to the addition of too much manure at planting time; causing high alkaline accumulation in the soil and tying up essential food elements. This condition may also be caused by increased bacterial activity in the soil, which temporarily uses up all the available plant food.

After applying sand to your heavy soil it must be thoroughly mixed by deep hoeing or otherwise. After soil is so prepared a planting of annuals should give a fair growth this season.

Seeds of the following plants can be sown directly in the soil at this time; in fact, some seed will germinate better now than earlier, as the soil temperature is more favorable. Secure seeds from your reliable local seedsman of zinnias, marigolds, balsam, calendulas, cosmos, nasturtiums, Phlox drummondii, and Poppies.

For zinnias you may choose large or dahlia-flowered types; height 3 to 4 feet. The Fantasy group, 2 to 3 feet high, are very desirable, as the flower petals are curled and interlaced. The Lilliputs are the smallest flowered zinnias, but very free blooming. Height generally up to 2 feet.

In the marigolds we find also the large and small flowered types. The best in the large flowered type are the Giant African and the carnation-flowered. Two of the best in the African group are Orange Ball and Lemon Queen. In the carnation-flowered group two of the best are Guinea Gold and Yellow Supreme. Most seed houses also carry an odorless variety called Gold.

In the smaller flowered marigolds the French Hybrids are supreme for bedding and border planting. The variety Spry is outstanding in this group.

The spacing of marigolds and zinnias should be twelve to eighteen inches.

Balsam comes in a wide range of colors and always adds interest to a planting of annuals. Height, about two feet. Spacing the same as zinnias. Calendulas are easily grown, but may not produce large flowers during the hot summer months. The doubles may even produce single flowers. Orange and yellow are the dominant colors. Plants should be thinned to a spacing of 12-14 inches. Their height is, under fair conditions, about 12-16 inches.

Cosmos are tall-growing plants, blooming in summer and fall. Sensation is the best group, and is presented in three colors: Pinkie, a pink variety; Dazzler, crimson red; and Purity, a white. In recent years plant breeders have given to the world yellow and orange colored cosmos, also a semi-double called "Orange Ruffled."

The best bedding Nasturtiums are found in the "Gleam" class. Golden Globe and Scarlet Gem are the outstanding varieties. Plants should be thinned to a distance of 12-18 inches.

Phlox drummondii is a beautiful garden plant, coming in two types; a tall, 15-18 inches, and a dwarf, 6-8 inches. Buy mixed colors for the best effect.

The Shirley poppies are easily grown by the home gardener. In this group we find some beautiful doubles, which are always attractive.

Other seeds of annuals should not be planted at this time as climatical factors and season are against you. You should work with the climate rather than against it.

You should visit a greenhouse or nursery and obtain plants of petunias, snapdragons, scabiosas, nierembergias, and verbenas. These plants may be small but must be stocky. Long overgrown plants are generally poor quality

and do not respond readily when set out. Verbenas and snapdragons should be cut back for best results, after they have taken hold, or when new growth begins to break. This cutback results in a uniform growth at blooming time.

The most valuable types of petunias for the home gardener are the Giant and the Grandiflora types. The California Giants are a showy type. Spacing should be at least 14-18 inches for best results. The Grandiflora types are dwarf, from 16-18 inches high. This class of petunias comes in plain edge and ruffled. The dwarf hybrids are the finest bedding plants. They are compact and free flowering. The most widely grown variety in this class is Celestial Rose Improved.

When selecting snapdragons be sure to get the outdoor type (rust proof).

All plants that I have just described will do well in full sun. Reduced sunlight will influence growth and blooming habit.

There are, of course, many new annuals to choose from, but the above list will give you a good start. You may make selections from these to suit your needs, time and pocketbook.

During the summer, both of you will learn a little about soil, moisture, humidity, air and light. You will get acquainted with fertilizers, insects and diseases. You will learn how much time it takes for upkeep of your place. Remember, Mary, that all of John's time should not be spent in the yard, as I have a fishing date with him. When fall comes the soil-building program should be continued by spading manure and leaves into the soil so that it will be ready for the big planting in early spring of 1950.

With my best wishes for a garden full of bloom,

Gus.



A FEW FAVORITE VARIETIES OF THE EXPERTS

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Aster, Queen of the Market

Mrs. Kathryn Marriage—L. A.
Lavatera, Loveliness
Anchusa myosotidiflora
Lynchnis mordens

Mrs. W. E. Kash—Grower
Petunia, White Cloud
Unwinn hybrid Annual Dahlia

Miss Maud McCormick—Grower
Pacific Hybrid Delphinium

Mrs. John Newman—Grower
Sanguinaria canadensis.

Elaine Zarlingo—Grower
Sedum spectabilis

Mrs. Helen Fowler—Grower
Doronicum Trolius
Anemone japonica

Bill Gunesch—Grower

Snapdragon, Snowdrift
Marigold, Colorado Sunshine

Petunias, Sonata, Allegro, Caprice

Ed Wallace—Landscape Architect
Russell Hybrid Lupines

Some of the Most Popular Perennials and Annuals Classified as to their Color and Height

OVER 36" HIGH

PERENNIALS

<i>White</i>	<i>Yellow and Orange</i>	<i>Red and Pink</i>	<i>Blue and Lavender</i>
Aster	Goldenrod	Aster	Aster
Canterbury Bell	Hollyhock	Canterbury Bell	Canterbury Bell
Delphinium		Delphinium	Delphinium
Hollyhock		Hollyhock	

ANNUALS

Cosmos	Cosmos	Cosmos	Sweet Pea
Nicotiana	Sunflower	Nicotiana	
Sweet Pea		Sweet Pea	

12 to 36" HIGH

PERENNIALS

Aster	Chrysanthemum	Aster	Anchusa
Babysbreath	Columbine	Bleeding Heart	Aster
Canterbury Bell	Coreopsis	Canterbury Bell	Blue Flax
Chrysanthemum	Gaillardia	Chrysanthemum	Campanula carp.
Funkia (Hosta)	Geum	Columbine	Canterbury Bell
Meadowrue	Russell Lupine	Dictamnus	Columbine
Oriental Poppy		Oriental Poppy	Funkia (Hosta)
Painted Daisy		Perennial Phlox	Phlox divaricata
Perennial Phlox		Pyrethrum	
Physostegia			
Russell Lupine			
Shasta Daisy			

ANNUALS

Aster (China)	Calendula	Aster (China)	Aster (China)
Cornflower	Marigold	Cornflower	Cornflower
Larkspur	Nasturtium	4 o'Clock	4 o'Clock
Nigella	Snapdragon	Larkspur	Larkspur
Phlox	Zinnia	Phlox	Nigella
Shirley Poppy		Salpiglossis	Salpiglossis
Snapdragon		Shirley Poppy	Zinnia
Zinnia		Snapdragon	
		Zinnia	

UNDER 12" HIGH

PERENNIALS

Iceland Poppy	Iceland Poppy	Iceland Poppy	Phlox divaricata
Lily-of-the-Valley	Poly. Primrose	Phlox subulata	Pinks
Phlox subulata	Trollius	Pinks	Sweet William
Pinks		Poly. Primrose	
Sweet William		Sweet William	

ANNUALS

Alyssum	Pansy	Begonia	Alyssum
Begonia		Geranium	Lobelia
Candytuft		Pansy	Calendula
Geranium		Petunia	Pansy
Pansy		Verbena	Verbena
Petunia			
Verbena			

DESIGN FOR LIVING—OUTDOORS

By ED WALLACE

THE modern trend in architecture and in the allied arts has been attributed mainly to the development of new requirements, new materials, and new methods, though new materials and construction have been used less in the modern home than we are led to believe. And yet, a new style has evolved which may call for a new style in landscape design.

The overworked cliché in architecture is that the plan must be "functional." That is, the design shall be determined by the honest use of materials, by their limitations and possibilities and the methods of their use, based upon the needs of the people.

If to be modern is to be honest in the use of materials and practical in construction, then the landscape profession usually has been modern; that is, inclined to express the character of the land, to be consistent with the architecture, and to express the natural qualities of the plant material. In landscape design, site usually determines the plan. Limitations of terrain, of existing foliage and of surroundings, call for individual interpretation in nearly every instance.

How then, do the contributing factors in modern design, new requirements, materials, and methods apply to landscape architecture?

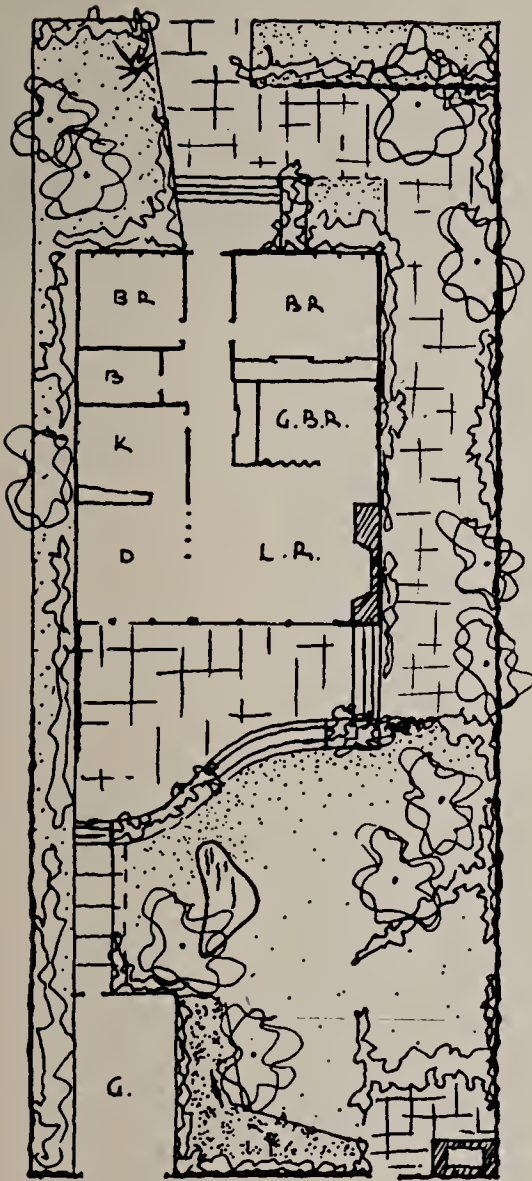
New needs have developed in modern living which have and will effect the house and its landscape. The public front porch has moved to the side of the house and then to the rear where it belongs, serving as an outdoor living room where the privacy of the backyard can be enjoyed. The desire for the integration of the indoors and the outdoors in living is finding its fulfilment in the solar house. Entry of solar radiant energy

in winter months is provided through large windows, "picture windows." This has created a need for better backyards — orderly, interesting and year-round in their appeal. Landscaping is an integral part of the solar house plan, and should be considered when the house is designed. It provides the screening for privacy necessary with the use of so much glass and is needed to furnish shade in summer heat. The orientation of the principal rooms toward the south and the accessibility to the garden through large openings, terraces, and living porches has brought a closer relationship between in and out-of-doors.

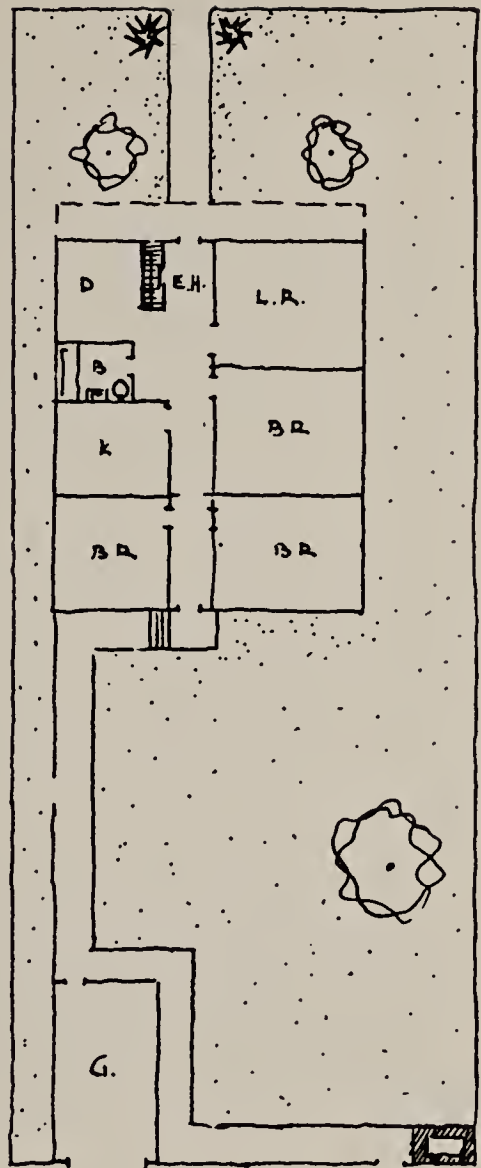
Thomas Church, a leading exponent of this garden revolution, designs and builds his gardens in much the same manner the architect does his houses. In fact, his gardens can best be described as outdoor rooms—"logical and intimate extensions of the house itself."

Garrett Eckbo, considered by many to be one of the country's most gifted and competent landscape architects, says, "The garden is not much different from the house. People don't change out-of-doors—they take their furniture, papers, food and toys with them." His concept of a garden is a harmonious continuation of the house plan; a living pattern which flows indoors and out wherever people work, play or rest. In his garden, plants are used not in decorative terms, but as architectural components in the shaping of outdoor space.

This outdoor living is a big part of the ranch-type house that is becoming so popular here in the West. It is impossible to consider a ranch house without thinking of the outdoor living areas connected with it.



AFTER



BEFORE

The above drawings indicate that you don't have to start from scratch. An old-type house on a fifty-foot lot, plus work and imagination, takes on character and livability when opened to the garden.

When using the words "outdoor living" we are mindful of the fact that climate here in the Rockies varies from the hot, dry, wind-swept plains to the cool, fresh mountain slopes and to the valleys and canyons through which the cool mountain air drops in late afternoon to be discharged over the plains. Each places its own particular set of limitations on outdoor living.

In forming your own definition of

"outdoor living," don't make the mistake of assuming that you have but one choice: all or nothing. Rain in some sections of the West prompts local citizens to dismiss any thought of the problem with; "You can't have outdoor living here." Yet, in these same areas, you'll find roofed-over outdoor areas wherein many warm but showery spring and autumn days are converted into outdoor days. Wind in some of our mountain areas dis-

courages many homeowners until a neighbor contrives a windbreak of glass, wood or planting, and really uses the out-of-doors. Even the ever-present insect problem has been fairly well negated by the use of the new insecticides.

The truth is that everywhere throughout the West, the out-of-doors must be modified in at least some way before it becomes livable. This recognition, that outdoor space is not universally and naturally delightful, has done a great deal to promote better outdoor living facilities and arrangements.

We are becoming ever more conscious of the need for good site planning; placing the house on the lot so as best to control sun and wind, thus providing protected areas and cozy nooks. No other one factor has more bearing upon the livability of a house, inside as well as out. It is the common opinion however, that the front of the house must face the street and that the living room must be the front room. Ranch houses should have no front or back but be so designed as to have all sides equally attractive. Living should be turned toward the sun regardless of the orientation of the lot. This calls for control of the sun's hot rays of summer, yet permitting the low warming winter rays to enter. A covered terrace would act as a sun visor for your living room. Overhangs may consist of slats tilted to permit the flow of air and the entry of light, but to screen out the direct rays of the sun. They may be designed as trellises, with wide leaves of



An effective demonstration of a close relationship between living terrace and garden, looking from garden to terrace, and from terrace to garden, as worked out by Jane Silverstein, Landscape Architect, at her own home. Photo by Margaret Davis.

vines growing over them in summer as a shade.

Westerly exposures too, should be shaded from that late afternoon summer sun. Non-glaring surfaces, cool colors and the use of water are also good modifiers where there is too much sun. Light, reflecting surfaces will trap what sunlight there is in areas where more is needed.

If your 60' lot runs east and west, place your house the long way of the lot. Face your living room to the south, but remember that living space is only that which affords privacy. An attractive screen of hedge, fence, or wall can be high enough to obstruct your neighbors' view, and yet let in sun and air. The living room in this situation might extend through the width of the house—a paved north terrace would offer a cool spot on the shade of the house.

When the lot faces south, the southern exposure and sunny living terrace are impossible if the living room faces directly on the street. Giving the whole plan a set-back of at least fifty feet and enclosing the resulting area provides the warm sunny garden that makes for pleasant living. Trees planted outside the enclosed court make the garden seem larger and yet give it the same shade and protection as if planted inside.



Terrace and garden at the home of Dr. and Mrs. Karl Arndt. Jane Silverstein, Landscape Architect. Photos by Margaret Davis.



If the lot faces north, the garden will, of course, be placed on the rear of the lot and the living room located so as to open into it. Bedrooms too can have their private outdoor living space, where even 15' between wall and fence will add attractiveness to the room.

We have been talking only of orientation in relation to the position of the sun, without consideration of prevailing winds. Today's home builder controls this situation with attractive fences, walls, and plantings. The average annual velocity of wind in the Denver area is 7.3 miles per hour, coming mostly from the south. This requires little consideration. Winds

exceed 20 miles per hour on an average of 143 days a year with the period of greatest frequency from March to July. These stronger winds come from the northwest and should be controlled for our outdoor living. A house built around a garden, with its open side to the south, would let in the sun and yet shut out the northwest wind. The same effect can be created through the use of wind-breaks.

The beneficial effect that outdoor living has upon life within the house is another reason for attaching such importance to it. Living is extended beyond the walls of a house and the feeling of being closed in is removed

through the use of a terrace outside of a living room. Even during inclement weather when one prefers to stay indoors, such a treatment seems to make the inside room larger both visually and emotionally.

The most common weakness in today's outdoor living rooms is their relationship to the indoor living areas. The simplest explanation is that most of these outdoor living rooms have been built after the house was completed. A house in which the living room conveniently looks across a nice little strip of lawn to a through-street introduces a real problem of relating indoor and outdoor living areas.

Of course the combination of house and garden planning into one operation would go far toward avoiding such mistakes. This pat advice sounds so easy that it is often misunderstood and the planner thinks he has followed it when he locates a terrace near the back door. The service yard, with its clothesline and incinerator might better be placed here. A paved area adjacent to a dining room where the table can easily be moved out of doors on pleasant days is best planned in conjunction with the house.

If you were to mark out your newly acquired lot, with stake and string, dividing it into areas as you intended to use them, you would be doing the kind of landscape planning we're talking about. We must remember that "living space" cannot be applied to any area within the boundaries of the lot, but only to the space that can be used comfortably, at least part of the time, for play, resting, eating, enter-

taining, etc. It cannot honestly be counted as livable space unless connected with the house, out of view of the neighbors and protected from rain, wind, and hot sun. If you apportioned the lot into sleeping space, living, entertaining space, and work-utility space, and there located the house walls to divide these areas for indoor and outdoor use, the result would probably be a most satisfactory and workable plan for both house and garden.

In planning for outdoor living, it is necessary to plan the outdoor rooms, their size and structure, before you decorate them. Just as the foundation and walls determine the use of your house, so do fences, hedges, paving, ground covers, etc., determine the use of your outdoor space. Once the basic framework, the structure of your garden is established, the decoration with flowers and vines can be more easily and successfully accomplished.

This decoration, this development of the plan into a pleasing elevation is, without doubt, one of the most important phases of the garden design. Herein lies the art of landscape architecture with untold possibilities for creating beauty through the proper use and combination of plant materials and structural features.

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Our Readers Send Us Their Questions and Their Answers

WITH this issue we are initiating a page of readers exchange. If you have an idea that you have enjoyed using in your house or garden, share it with the rest of us. If you have a question about garden problems, send it in, and surely between the information at Horticulture House and the help of our readers, it will be answered.

When I have emptied a can in my kitchen, I always remove the label, cut out the top, and the bottom and slit the can so that I have a flat piece of tin. I then slip these pieces of tin into the edge of my lawn next to flower borders thus eliminating a great deal of weeding. The tin is almost invisible as it stands only about an inch and a half above the ground, and is thus practically covered by the grass. —L. R.

I have noticed that the soil in the pots of my house plants has tiny white animals which seem to be fairly inconspicuous except when I water my plants, at which time they are very much in evidence, hopping and twisting about on the damp soil. Are these little bugs injurious, and can they be eliminated? —A. M. T.

The tiny creatures you mention are undoubtedly springtails. They are not apparently injurious to plants, and can be controlled by a combination of drying and a light spray of Black Leaf Forty on the soil at the time of watering.

We are trying to put in a new lawn, but have met with only fair success. Our soil is very sandy, and absorbs water so fast that on a really warm day, the lawn is baked in a few

hours after watering. If we water excessively the soil washes as it is on a bank. Is there any way we can solve this problem, and insure a good lawn for ourselves?

We advise the use of burlap over the seeded area, as it will hold the water and prevent washing. Some nurserymen have been successful in mixing vermiculite with the soil prior to seeding, in conditions such as yours, as the vermiculite absorbs quantities of water, thus eliminating the run-off and baking problem.

One of our readers has gopher trouble and has tried all traps and poisons with little success. An asthmatic child precludes their owning a cat, so they are contemplating getting a couple of pet skunks, if they can find any. We hear they make good mousers. Do any of our readers know whether or not they are good gopherers? —B.B.

After serious consideration, the staff at Horticulture House has adopted this motto—"Let George Do It"!

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MAY GARDENING GUIDE

WHEN the spring blooming shrubs such as Forsythia, Van Houtte Spirea, etc., have finished blooming, they should be pruned before buds for the next season's bloom start to form.

If you're making a habit of raking the lawn free of all dead leaves and grass clippings, think it over! Every time a pile of lawn rakings is burned up, you're also burning material which is very useful for mulching and humus. There is danger, of course, in having such a thick mat of leaves, etc., on the lawn that the grass will suffocate. Never pile "inches" of mulching material on the grass.

Are dandelions a problem in your garden? Try the 2-4D sprays, which take care of them in a hurry without injuring the lawn. Don't spray on windy days though, and protect shrubs and trees from the spray driftings, since 2-4D is hard on them.

Rose enthusiasts follow a rigid spraying and feeding program in their gardens. For best results, spray and/or dust roses every ten days to two weeks, and fertilize once a month. Because of the big demand for rose insecticides, fungicides, and fertilizers, many commercial products are now marketed specifically for roses.

Don't sprinkle! Water thoroughly and not too frequently for deep-root formation now which will help plants resist the hot, dry weather ahead.

After a garden is labeled and classified, you'll never again be satisfied to have "forgotten" plants, without names, living on your property.

In cultivating, lean lightly on the hoe, stay in the top two inches of the soil, and you'll be rewarded with fewer injured roots.

After the middle of the month, tender annuals which have been started from seed in the house or purchased in flats from the seed store or nursery, can be set out with reasonable safety.

Preparation for a new lawn should include the incorporation of fertilizer and soil-conditioning materials into the lawn area to promote a good turf. Later top-dressing will be far less beneficial than good initial preparation.

Perennials which are dug with a ball can be transplanted all summer long in most instances.

From now on through the season of growth, watch Junipers, Dogwood, Euonymus, etc., for aphids and other insects.



JUNE, 1949

25 Cents

The Green Thumb

Outdoor Living in the Rocky Mountain Area





The Green Thumb

Vol. 6

JUNE, 1949

No. 5

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Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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 Secretary.....Mrs. A. L. Barbour

JUNE SCHEDULE

JUNE 4 & 5, Saturday and Sunday.

Mary Lou Cox, leader. Trip to Ute Peak in Williams Fork Mtns. Leave Denver Saturday morning to join Collection Group at Slate Creek Ranger Station. Walking distance 4-10 miles. Driving distance 180 miles round trip.

JUNE 9, Thursday, 8 P.M. Horticulture House. Rose Society.

JUNE 10, Friday, 7:45 P.M. Horticulture House. Wildflower Kodachromes shown by Harold Roberts.

JUNE 12, Sunday, Wildflower trip to Estabrook and Windy Mountain. Led by Mrs. A. L. Barbour. Leave Horticulture House 8 A.M. Driving distance 90 miles, walking 4-6 miles.

JUNE 15, Wednesday, 8 P.M. Horticulture House. Commercial Men's Meeting.

JUNE 19, Sunday, 2:30 to 9 P.M. Ford Motor Co. Display Room, 40th and Fillmore Streets. Rose Show, Denver Rose Society.

JUNE 19, Sunday. Wildflower trip to Brainard Lake and Pawnee Pass. Led by Dr. Moras Shubert. Leave Horticulture House 8 A.M. Driving distance 110 miles, walking 10 miles.

JUNE 25 and 26, Saturday and Sunday. Collection trip to the Gore Range. Leave Horticulture House 1 P.M. Saturday. Driving distance

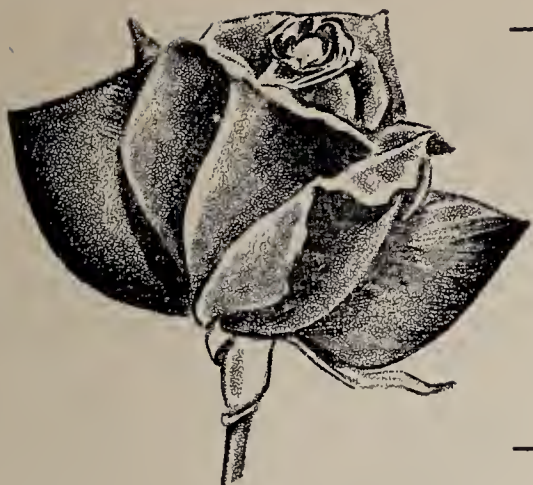
280 miles, walking optional. Camp will be made at cars and hike taken to Big Piney Lake.

JULY 2, 3, 4, Saturday, Sunday, Monday. Trip to Monarch Lake and Crater Lake. Leave Horticulture House 8 A.M. Driving distance 250 miles, walking optional. Camp will be made at Monarch Lake.

Please register several days in advance for all trips. On day trips bring a pocket lunch, and on overnight trips bring lunch for the following day and mess kit for community meals. Expense of transportation and meals will be distributed among the participants at cost. Everyone helps with camp duties.

Do not attempt these trips unless you are properly dressed. Good heavy shoes are essential. Wear rough and warm clothes and carry extra dry socks and jacket or rain coat. Bring good sleeping bag for overnight trips. Camera, botany books and such optional. Everyone should always carry a waterproof box of matches.

The Editors are sorry that they failed to note that the drawings on page 25 of the May issue in connection with the Wallace article were made by Joseph G. Dion, a student at the School of Architecture of Denver University.



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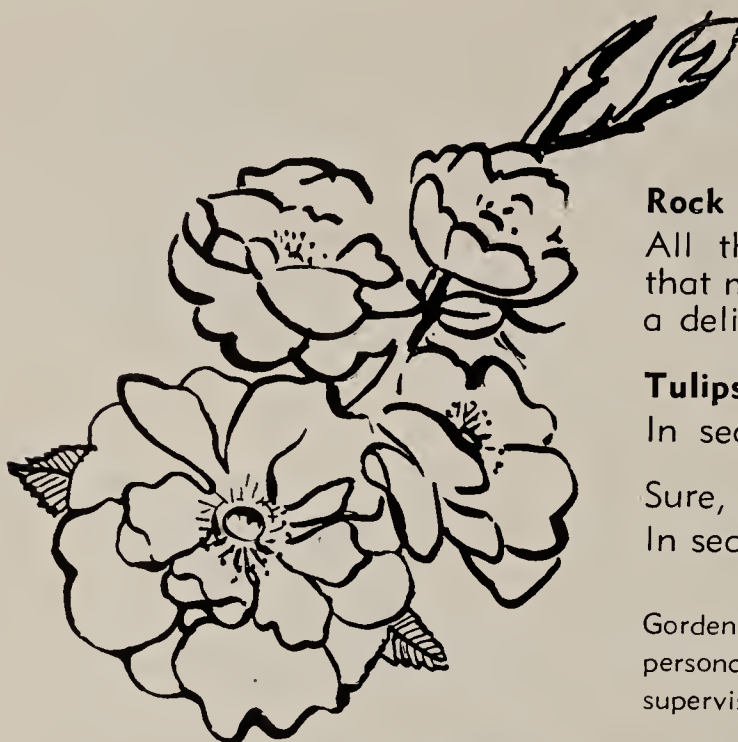
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BY ANNA TIMM

Meat Balls Espanol

- 3 lbs. hamburger
- 1½ cups softened bread crumbs
- 2 teaspoons salt
- ½ teaspoon pepper
- 1½ quarts stock or
 - 2 cans Consomme Soup,
 - dilute ½ with water
- 3 cans tomato sauce
- 1 bay leaf
- 2 large onions chopped
- 1 green pepper chopped
- 4 tablespoons shortening
- 2 tablespoons flour
- 2 egg yolks

Combine hamburger, bread crumbs, salt, pepper, egg yolks. Form into soft balls, 1½ in. in diameter. Drop into meat stock; add tomato hot sauce and bay leaf. Brown onions and peppers in hot shortening, add to stock. Simmer 30 minutes. Remove meat balls. Thicken soup and pour over meat balls.

Serve with boiled spaghetti, baked or boiled potatoes, or boiled rice.

To complete the meal serve:

A green raw vegetable salad—Tart dressing or dill pickles—Canned or fresh fruit dessert.



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PROTECT YOUR GLADIOLUS CORMS FROM ROT

AUSTIN O. SIMONDS

HOW DID your "Glads" do last year? Were the corms you harvested last year fewer than those planted and of a good rot free quality, or did many of them have large brown decaying spots in them? The "Green Thumb" printed an article on gladiolus in their September-October, 1947 issue. This note reports the findings of a much more extensive test run in 1948. The writer, as a member of the Colorado Experiment Station, took part in a national cooperative test to try to determine the best treatment of gladiolus corms with chemicals to prevent corm rot.

Interest was not only in preventing as much disease as possible, but also the effect of treatment on flower production. Ten treatments were tried on 1,500 corms with the experiment set up so a scientific analysis of results could be made to see if differences found were large enough to be due to the treatment or only the soil spot where each lot was planted.

Data was assembled to consider the number of plants producing flowers, the number of rot free corms and the amount of disease present. The four chemicals ranking highest in the over all effect with methods of use are as follows:

ARASAN, applied as a dust full strength. Shake corms with a small amount of dust in a paper bag until they are well coated. This material may be applied several weeks before planting.

LYSOL, 4 tablespoons to 3 gallons of water. Soak corms 3 hours and

plant while still wet in reasonably moist soil.

NEW IMPROVED CERESAN, 1 ounce plus 2 tablespoons of Dreft which acts as a wetting agent, to 3 gallons of water. Corms to be soaked 15 minutes and plant immediately in moist soil. **NOTE:** Since this compound is toxic to some people, avoid inhaling dust and do not get paste on hands or clothing.

DOWCIDE B, 6 ounces to 3 gallons of water. Soak corms 15 minutes and plant immediately in moist soil.

Some growers may be concerned about scab which does not cause corms to rot but makes brownish black spots on them. If corms are scabby and also have fusarium rot, we suggest recommendations from recent work in Illinois which is as follows:

Dissolve $\frac{1}{2}$ ounce of corrosive sublimate in $3\frac{1}{4}$ gallons of water. Mix 1 ounce of New Improved Ceresan and 2 tablespoons of Dreft in $\frac{1}{4}$ cup of water. Add this to the corrosive sublimate solution and mix thoroughly. Soak corms 30 minutes and plant immediately.

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THERE IS AN UPTURN IN THE TREND OF ROSE GROWING IN AMERICA

ROBERT PYLE

IN FLORISSANT, Colorado, Bridge Creek and Crooked River in central Oregon, have been found fossilized Roses that date further back than any discovered anywhere else in the United States, I believe. Scientists of the U. S. Geological Survey who have these perfectly preserved Roses, pressed by Nature in her stone scrapbook for safe keeping, estimate them to be nearly 33,000,000 years old. This is long before the age of man and a time lapse that is quite beyond comprehension.

Colorado folks, therefore, may rest assured that they are living in a natural Rose pioneer state. What about present-day Rose growing? And what of the future? Let me quote from a letter recently received from Fred Edmunds, the wise and well known Curator of the International Rose Test Gardens at Portland, Oregon: "You, Mr. Pyle, have been many times in Europe. You surely must realize that America is due for a vast increase over the number of Roses it now enjoys." In fact, he estimates we'll shortly have six times as many Roses growing throughout America. The writer agrees that, at the present rate of increase in knowledge, love and use of Roses, the prediction of Mr. Edmunds bids fair to be realized, perhaps even in the lifetime of some who read this.

Some cautious, realistic reader may say to his wife, "That old Rosarian certainly has a Rosy view of things. I wish he'd put down just what makes him think so." So be it! Rose interest and Rose enjoyment has risen strongly in the last two decades. Is there any reason why the uptrend should not continue? Today we find

Roses being grown, and the growing of them enjoyed increasingly, in localities where 20 years ago it was said, "We cannot grow Roses here." Soil or climate or something was thought to prohibit. Certainly the long-range climate has not greatly changed. Can it be that people have had reason to change their point of view? Have Rose growing methods improved, or are the newer Roses better able to withstand a difficult climate? Why has there been so great a change?

Let us not forget that back of all here stated, one basic fact must be recognized and acknowledged as of profound significance. The Rose had, for generations past and still has, qualities that appeal to the deepest instincts in man's nature—i.e. his love for beauty. He needs—and must love the beauty of perfect creation when he sees it. Men's hunger from a sense deep within drives him forward to find or to produce that which he seeks and which, God be praised, the history, literature and art of the human race abundantly testify that, in the past, he has found!

Furthermore, many may be attracted to the Rose by reason of its superiority, if not its supremacy as a garden flower. It is capable of adapting itself to a vast range of climates, to extend its flowering season as now improved over more days in the year than other plants, to

The author of this article is President of the Conard-Pyle Co., introducers in America of the Peace Rose. He is also one of the leading figures in the American Horticultural Society and the National Arboretum. We feel honored to have him as one of our contributors.

give expression in growth from the Lilliput sizes and Miniature blooms, to plants, one of which will cover an amazing area or grow to cover the tallest Romeo and Juliet balcony, and to live, if not as long as the Sequoias, yet to outlive a man and his successive generations. Improvements in the Rose gained by hybridizers, within the lifetime of the present writer, indicate potential developments far greater than already realized. What an intriguing prospect! What other flower can compare with the Rose in its broad, over-all potential as companion plant for man in his hours of recreation? Certainly these qualities help explain why people want to grow Roses everywhere, despite winter cold or summer drought. These qualities help explain Roses' striking success in "Winning friends and influencing people."

Where do we find grouped together these friends of the Rose? In the American Rose Society, of course! There is a single flower society with 10,500 paid members at \$4.50 per year! What similar organization enjoys so much? From their national headquarters comes a bi-monthly, 50-page magazine; a most useful, 170-page handbook; a 272-page annual, "providing specific help on every phase of Rose culture" and unending interest for anyone who grows or hopes to grow so much as a single Rose bush. What other single-flower society enjoys the loyal support of 137 affiliated organizations, many with their own enterprising, supplementary bulletins? What other flower society offers more of inspiration and information at both regional and national conferences? Through this great group of organized amateur growers is passed along news that is steadily being released of what science has been teaching us, that is, ways and means successfully to fight pests,



Fossil remains of roses now in the National Museum.

more and better methods of growing.

In the state of Colorado there are, at present, two local rose societies affiliated with the national organization. These are the Denver Rose Society, of which Mr. A. A. Sovereign, 3531 West 40th Ave., is the Secretary and the other is the Colorado Springs Rose Society, of which the Secretary is Mrs. Hershel Hildreth, 1409 South Nevada Avenue, Colorado Springs.

In turn of the wheel of fortune for the amateur Rose Grower, no other factor of improvement offered appeals to the writer as having been more important than the almost complete change-over from the old to a new race of Roses. In 1910 Simon and Cochet listed some 11,000 named Rose varieties including species. In the 40 years since then, the annual world output of new Roses has probably quite exceeded 50% more—a greater increase than within any previous four decades. Not counting the specialized species and collector's "Old-fashioned" Roses, we find few varieties bought today that were of-



Peace and Pixie Roses.

ferred in the catalogs of 1909. Entirely new strains and new races of Roses have been added to the range of color, beauty of form, length of blooming season, hardiness and vigor.

As compared with other species, the rose appears to have been improved more steadily and more rapidly than other types of flowers. Here is a criterion by which to judge. Since the Plant Patent 1930 Amendment to the more than 100-year-old Patent Law of the U.S.A., out of a total of 829 Plant Patents issued, 388 have been patents on Roses or 45.5% of all. The enactment of the American Plant Patent Amendment was like a sunrise of hope in the heart of the hybridizer. Here at last was the prospect of some recompense. With some, a hobby became also a profes-

sion and American gardens already reflect the gains made in consequence.

Last of all, but perhaps more important than all other single factors in raising the standard of the product provided to the amateur by Rose producers, is a ten-year-old venture which already has been revolutionary in its good results. Reference is here made to the All-America Rose Selections which, by its operations, have immeasurably improved the quality of new Rose introductions. The All-America testing is different from all others because it takes place before introduction or sale and happily for the amateur purchaser of new Roses, the AARS pre-introduction testing results in a great saving to the Rose purchaser.

The AARS is made up of leading

Rose growers and Rose introducers in America. This cooperative enterprise brings together new Roses for thorough-going testing, before any are put on the market. Four to six plants of each variety are sent for 18 months and climbers for 30 months testing into 20 Test Gardens in the various climatic areas of the country. Careful scores are kept by the most competent judges and sent to headquarters for compilation and eventual vote by the trustees, none of whom may vote for his own varieties. Out of 51 varieties in this year's tests, there will be selected a small number, from one to possibly five, for introduction to the public under the name of the All-America Rose Selections. Before the public announcements are made the growers unite in providing an ample supply to meet a demand resulting from information broadcast to the national press. Pre-introduction testing saves the amateur Rose Grower some thousands and thousands of dollars of needless investment in poor kinds and has measurably and definitely raised the standards by which novelty Roses are judged worthy of introduction. We

now have, in the history of Rose Growing, a plan by which the prize for excellence, that is, the AARS award, is one of such value as to stimulate amazingly enthusiastic efforts of hybridizers for varieties that will qualify to merit this Oscar, this Pulitzer Prize in the Rose World. By reason of the stimulus offered by this greatest of American awards, the American family gardener may well turn his attention to Roses as the most exciting and rewarding of any flower he can possibly choose to grow.



Mme. L. Meilland and M. Francis Meilland, French originators of the rose which Mr. Pyle introduced in the U. S. as Peace.

START WITH THE TRUE AND THE TRIED

By R. C. ALLEN

Executive Secretary of the American Rose Society

FOR THE beginner, it is a great mistake to attempt to grow too many varieties of roses. It is much better to stick to a few of known reliability and grow three or more plants of each. Later on, one can experiment by testing some of the new introductions.

There are several ways to obtain help in selecting varieties. One is to visit the gardens of friends who have had experience. Talk with them about the abundance and continuity of bloom, the fragrance, disease resist-

ance and the desirable and undesirable traits of the roses that appeal most to you in form and color. Pick out six or twelve that you feel will best meet your needs. As you visit other gardens, try to observe these same varieties under varied conditions.

One should never miss seeing a rose show where garden grown blooms are exhibited. It is a good place to study rose varieties but it should be kept in mind that a win-

Continued on Page 18

ROSE GARDEN DESIGN

BY MAURICE N. MARSHALL

A question which enters the mind of almost every purchaser of hybrid tea roses, and for that matter also floribunda and polyantha roses, is how and where to place them to get the most in appearance from them. Rarely does one derive much benefit from random or occasional planting of roses where no group design is followed.

Roses should always be planted in groups or beds of several together usually spaced about two feet apart. The beds should be in open well-ventilated situations away from tree roots and other competing plants. They should always be kept under clean cultivation both for good health and good appearance.

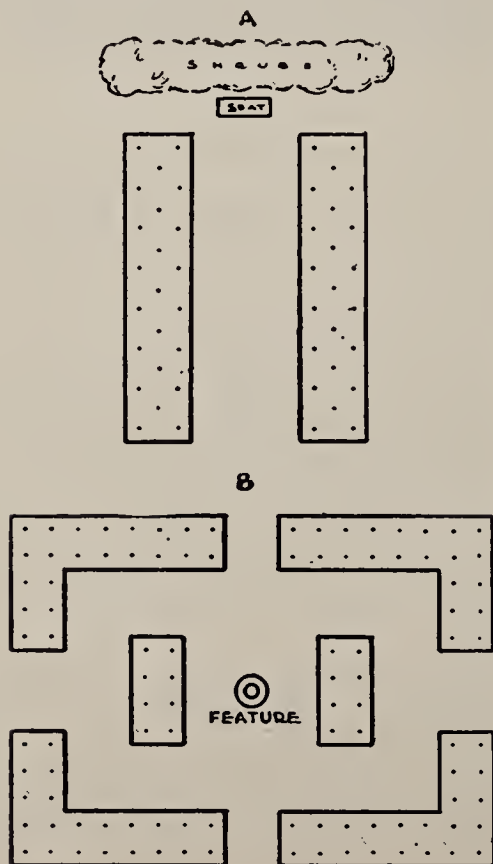
Designs A and B show how a sizable portion of an area can be devoted to a beautiful rose garden. Design B can also be changed using wider beds of roses, that is, beds of



*Sweet Fairy, Tom Thumb and Pixie,
Red Elf in rear.
Below Right, Tom Thumb.*

the width shown in design A, or even 4 rows of roses wide if necessary. Design C is offered as a suggestion of something still more elaborate where 200 or more roses are desired.

It is obvious that these several designs are basic in principle and that actually hundreds of variations are possible.



MINIATURE ROSES

R. D. W. CLAPP

EVERY rosarian has a new thrill in store for him. He is, of course, accustomed to that delightful winter occupation of poring over his favorite dealers' catalogs and selecting the new roses. But what is this new thrill? It is the new miniature roses which have only been available for a comparatively limited time and in modest numbers.

And what a thrill it is too. Imagine a well branched, healthy rose bush only six to eight inches high, tough and hardy, that requires no pampering, free from all but normal rose diseases, covered all summer long with tiny perfect rose blossoms about an inch in diameter. Each bud and its opening flower is perfect in a setting of deep green healthy foliage. Isn't that something to get excited about? There are now five species on the general market at not to exceed a dollar a plant.

Rosa Rouletti, a fine rosy pink, is the oldest known species, having been discovered in a Swiss rock garden a few years ago, after having been lost to cultivation for many years. It is quite double and blooms from early summer until frost, holding its color well.

Oakington Ruby, which has received an Award of Merit from the English Royal Horticultural Society, is fully double with a deep carmine bud, opening into a rich ruby flower about an inch and a half in size. It, too, is a continuous bloomer.

Pixie, a patented rose, is the most fully double of all miniatures, with forty or more petals to each floret. Its continuous blooms show an apple blossom pink bud, opening, here in our bright Colorado sun, to nearly a pure white with flush of pink in the center. The plant is quite dwarf and compact.

Sweet Fairy, distinguishes itself by emitting a true rose fragrance from its tiny double apple blossom pink flowers. It is a must with any lover of miniatures.

Tom Thumb, another patented minia-

ture, has deep crimson buds, opening to a lighter shade, and when fully open, discloses a tiny white eye in the center of each flower. It is an exquisitely formed perfect tiny rose showing the usual continuous blooming characteristics.

But aren't these lilliputian plants difficult to grow and care for? Not at all in my own experience. Any one who raises healthy normal sized roses should have no trouble with miniatures which require the same care in planting in carefully prepared and well drained soil, ample water, modest fertilization, the same spraying or dusting program as other roses and identical winter hilling, on a scale, however, in proportion to the tiny plants's size.

In fact, I use these dainty, bushy little plants with their healthy green foliage, as a border for my rose garden, where they automatically get the identical treatment as their big brothers, which they outshine completely in the quantity of continuous blooms.

I can only urge anyone interested in roses to try a few of these delightful new plants. You will be amply repaid by their bright cheerfulness and your greatest chore in their care will be found in keeping the old blooms removed so that the little fellows will always look their very best for their admiring and continuous gallery of visitors.



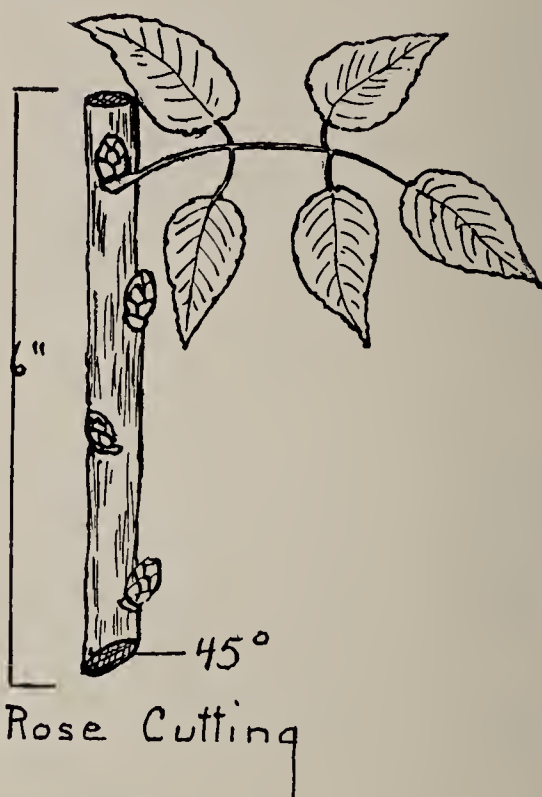
PROPAGATION OF ROSES

L. J. HOLLAND

IT is well known that the modern garden Rose cannot successfully be grown from seed; that, if it sets seed at all, the plant that would result from these seeds would not be a true likeness of the parent plant, but likely a very inferior specimen. In fact, professional hybridists, with their knowledge of plant breeding and their facilities for carrying the work of creating new varieties, do not achieve desirable results more than one-tenth of one percent of the time.

How then can the hobbyist increase his number of Rose plants without purchasing the blooming size bushes? The answer is, by what is known as vegetative or asexual propagation. With roses, this is almost invariably by the shield-bud method of graftage, although Climbers, (Except Hybrid Tea climbers) can be grown on their own roots with a fair amount of success. Practically all Briars and Rugosa hybrids are readily grown from cuttings, but too often produce objectionable root-suckers; Harrison's Yellow is a typical example of this. Gruss An Teplitz and Rosa wichuriana (The Memorial Rose) are two old favorites that root readily from cuttings, yet never send up root-suckers.

Cuttings for rooting should be taken from green wood, (That is, wood that shows active growth.) during the first week of July, wood that has produced flowers gives the best results. Usually several cuttings may be made from one stem. Each cutting should be about 6 inches long. The cuts should be made close below the lower bud and at any distance above the upper bud: It is common practice to make the lower cut at an angle of about 45 degrees, but almost

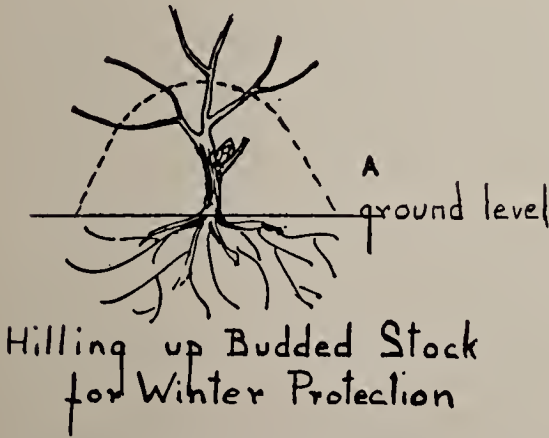


straight across on the upper cutting. The leaves should be removed from all but the top bud. The cuttings should be planted as soon as possible, either in a cold-frame or under glass fruit jars, with only the top bud showing above the ground. The cuttings should be left in place until spring, then planted out where they are to remain. During the winter it is well to give a protective covering of some kind to prevent freezing. As has been previously stated, Hybrid Teas are seldom successfully grown in this manner, because they do not develop a root system vigorous enough to support a healthy plant.

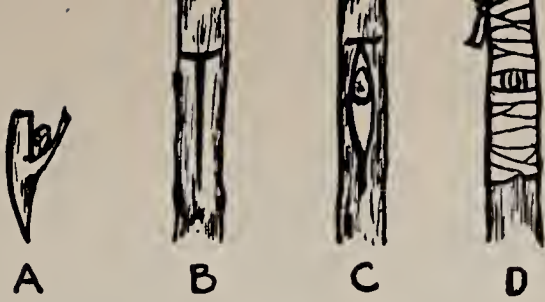
Hardwood cuttings are made in the same manner, but from well matured canes of the previous season's growth. The cuttings are then placed in damp sand and kept in a cool part of the basement until spring in the manner prescribed for greenwood cuttings.

Hardwood cuttings are best confined to Hybrid Perpetual, Polyanthas and the Rugosa Hybrids.

In any form of grafting, the first consideration is for a suitable understock to which the bud or scion is to be united. Multiflora, (*Rosa multiflora japonica*), is the most commonly used understock for outdoor roses, except that Climbers are often budded on Cherokee Rose (*R. setigera*) understock. While all botanical varieties of roses can be grown from seed, the amateur propagator will probably have better luck with understock grown from July cuttings as previously described. The budding is done either the following July with a "live" bud or in late August with a dormant bud. The July bud will start to grow immediately, while the August bud will not show growth until the following spring. Of the two, I prefer the latter, since there is usually less winter damage. In either case, the budded understock is "hilled up" to afford maximum protection during the winter. A precaution that must be observed when setting out rooted cuttings is to remove all but the top bud from the cutting, otherwise "shoots" or suckers will develop below the ground level from the undestock, to the detriment of the budded scion.



There are several methods of budding, but only the shield-bud will be considered here. This is made by cutting the bud from the bud-stick



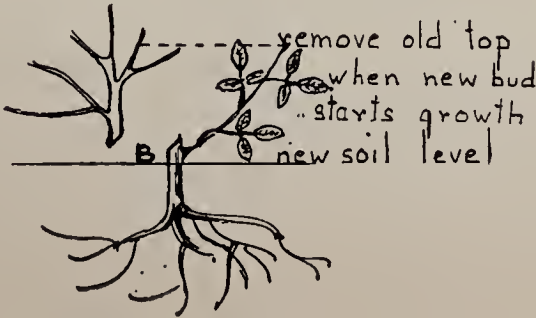
so as to include a portion of the bark above and below the bud and a bit of wood underneath the bud (A). It doesn't seem to make any appreciable difference whether this splinter of wood is removed or not.

The cut made to receive the shield is in the shape of a T. First a cut is made lengthwise of the understock, then a transverse cut is made across the top of the first (B). With the point of the knife blade, lift the bark at each side of the cut sufficiently to insert the bud. If the top of the shield projects above the horizontal cut, the bud will fit snugly against the wood of the understock at all points (C).

The operation is completed by tying the bud in place with several turns of soft twine or raffia. Wrap the twine over the loose end for about four turns below the bud, then same number of turns above the bud. The tie may be made by looping the end under the last turn. Covering the edges of cuts with grafting wax is a precautionary measure worth taking in this drying atmosphere (D).

The bud should be placed as low on the understock as it is feasible to work, and preferably on the northeast side to take advantage of the slight shading.

After the bud has "taken" all other growth on the understock should be cut off to divert all strength to the bud. Two years will have elapsed before sufficient new growth has taken place to produce good flowers. Any that might start the first year should be disbudded.



Continued from Page 13

ning rose may not be the best for your garden. Some fine exhibition varieties do not bloom freely, although many are very satisfactory for garden display. (The Denver Rose Society will sponsor a Denver Rose Show on the 19th of June at the new Ford Motor Company Show Rooms at 2650 East 40th Avenue. Ed.)

The following is a list of true and tried hybrid tea varieties covering a wide range of colors that can be depended on to give good performance.

Crimson Glory.....Crimson
Golden Dawn.....Yellow

"Makers of Beautiful Gardens"

Roy E. Woodman and Bros.

Landscape Gardeners and Nurserymen
Denver, Colo. SPruce 5509

Radiance.....Light Pink
Charlotte Armstrong
.....Deep Pink
Eclipse.....Yellow
Soeur Therese.....Yellow
Peace.....Yellow Blend
Kaiserin Auguste
Viktoria.....White
Good News.....Peach
President Herbert Hoover
.....Multicolor
Mme. Cochet-Cochet
.....Salmon Pink
Mme. Henri Guillot
.....Orange Blend
Editor's Note: Not included in Mr. Allen's list, but worthy of notice might be the following, chosen as well as the above by a large group of experts:
Etoile de Holland
.....Brilliant Red
Picture.....Rose Pink
Christopher Stone
..Scarlet overlaid with crimson

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4. **Use of the Lending Library** of more than 250 leading rose books which are lent to members at no cost except postage.
5. **Help on Rose Problems** from the Councilors and Consulting Rosarians who are glad to answer individual queries on every phase of rose culture.

Annual Dues only \$4.50
or Three Years for \$13.00

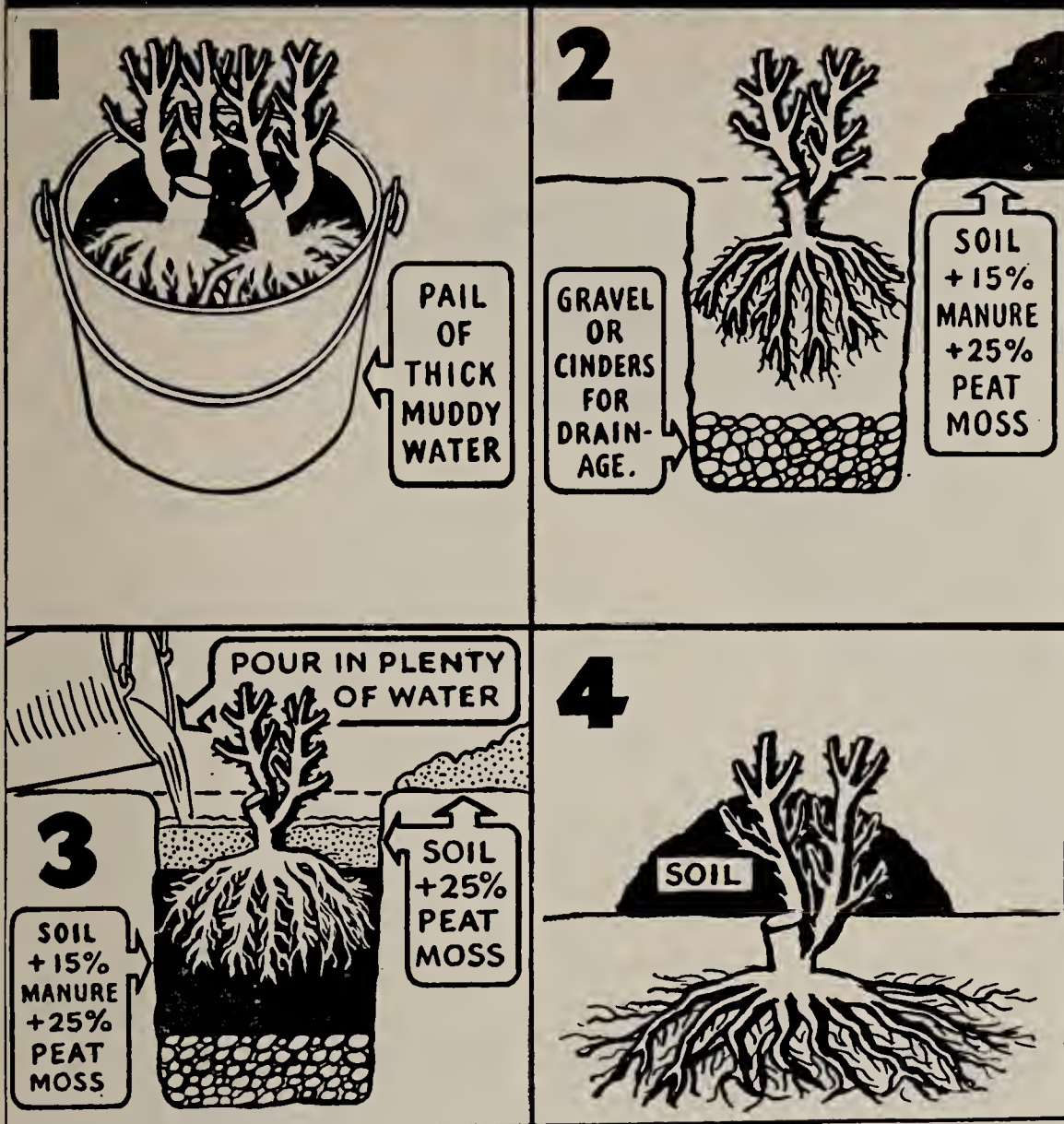
The Secretary will be glad to send additional information upon request.

AMERICAN ROSE SOCIETY

Box 687F

Harrisburg, Pennsylvania

HOW TO PLANT A ROSE



Drawings courtesy the Jackson and Perkins Rose Co.

1. Unpack plants as soon as they arrive from the nursery and soak the roots in a bucket of thick muddy water for 6 to 8 hours before planting. If planting has to be delayed for a few days, cover roots with soil and keep covered, tops and all, with wet burlap or straw.

2. Most important points in planting roses are preparation of soil to a depth of 24", dig hole large enough for roots to be spread out with 4 to 6 inches of drainage at bottom. Roses will grow in soil that grows good vegetables but ideal mixture for finest bloom and growth is soil plus 15% rotted manure and 25% peat moss, and a cupful of special rose food mixed through the soil.

3. Plant rose so that graft will be at ground level of the bed. Pack soil firmly about roots and when hole is half filled with soil, pour in a bucket of water, then fill with soil. Top few inches should be soil plus 25% peat moss. Space hybrid tea roses 16 to 18 inches apart and floribundas 18 to 24 inches.

4. After planting, hill up 6 to 8 inches of soil over the tops to prevent their being dried out by wind and sun. As soon as new growth has started well, this covering should be removed. At this time, plants should be sprayed or dusted with a special rose spray or dust and 1 tablespoon of rose plant food should be worked into the soil.



CONSIDER THE ROSES

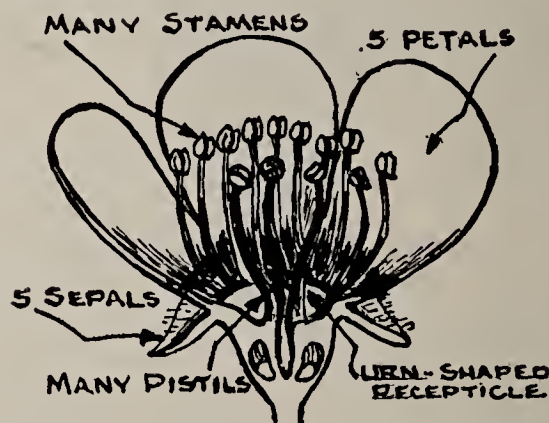
By G. KELLY AND E. MOORE

GERTRUDE Stein might have said, "A rose is a rose is a rose" . . . but is it really? In this issue we concern ourselves chiefly with the members of the genus *Rosa*, but in considering a queen, wouldn't it be fitting to look into her family background, and even go into the provinces in search of her relations so as to better assess her queenly prerogatives?

The royal family, of course, in all its present glamorous manifestations, the beautiful hybrid teas and hybrid perpetuals, the free blooming floribundas and polyanthus roses have a common direct ancestor in the simple but beautiful wild rose which we see clambering over rocky slopes and on meadow walls in brief July profusion. In fact, for earthy strength, the present queens depend on the vigorous roots of their ancestors, with most

grafts being on the stock of a wild rose from Japan.

Although the genealogists find themselves in some disagreement as to the position of various members of the family, the general treatment is to consider the family as separated into several sub-families, which would include the true Roses, the Spireas, the Apples and the Plums. The botanical characters which distinguish this group may be seen in the cut. The fruit, in most cases, is fleshy and edible.



In considering the queenly family, one comes to understand how members evolved to royalty, for in few other plants can one find so many examples of beauty of form, sweetness to smell, or deliciousness to taste.

In Colorado we find both native and cultivated members of all these sub-families. Among the native Spireas are the Rock Spirea or Holo-discus and the Ninebark, growing at altitudes from seven to nine thousand feet. Thriving in our gardens are the

Sorbarias or False Spirea, the Pearl-bush (*Exochorda*), and the true Spireas which we have just seen in splendid white profusion.

The Apple sub-family has many distinguished members of great character. Growing vigorously on our mountain sides we find the native Hawthorn, the Mountainash, the Service Berries (*Amalanchier*), and the Squaw Apples (*Peraphyllum*), found in the southwestern part of the state. Cultivated, there are the commercial Apples and Pears, the Crab-apples, and a great variety of Hawthorns from all over the world, the Cotoneasters, the Firethorns (*Pyracantha*), and the flowering Quinces (*Cydonia* or *Chaenomeles*).

The Plum sub-family includes the native and domestic Plums, Cherries, Peaches, Apricots, Almonds, and the little known Prinsepia, (See the April G. T. pg. 7) as well as the Pin Cherry, Chokecherry and Sand-cherry.

The Rose sub-family (*Rosioideae*), besides the genus *Rosa*, includes the Jetbead, a shrub adapted to an eastern exposure, Raspberries, Strawberries, wild and cultivated Geum and Sieversia, both of which may be used in the perennial border, and the natives, Thimbleberry, (*Rubus*), *Potentilla*, both shrubby and herbaceous, Apaches' Plumes (*Fallugia*) found in the Sand Dune country around Alamosa, and Mountain Mahogany (*Cercocarpus*), on dry hillsides. The

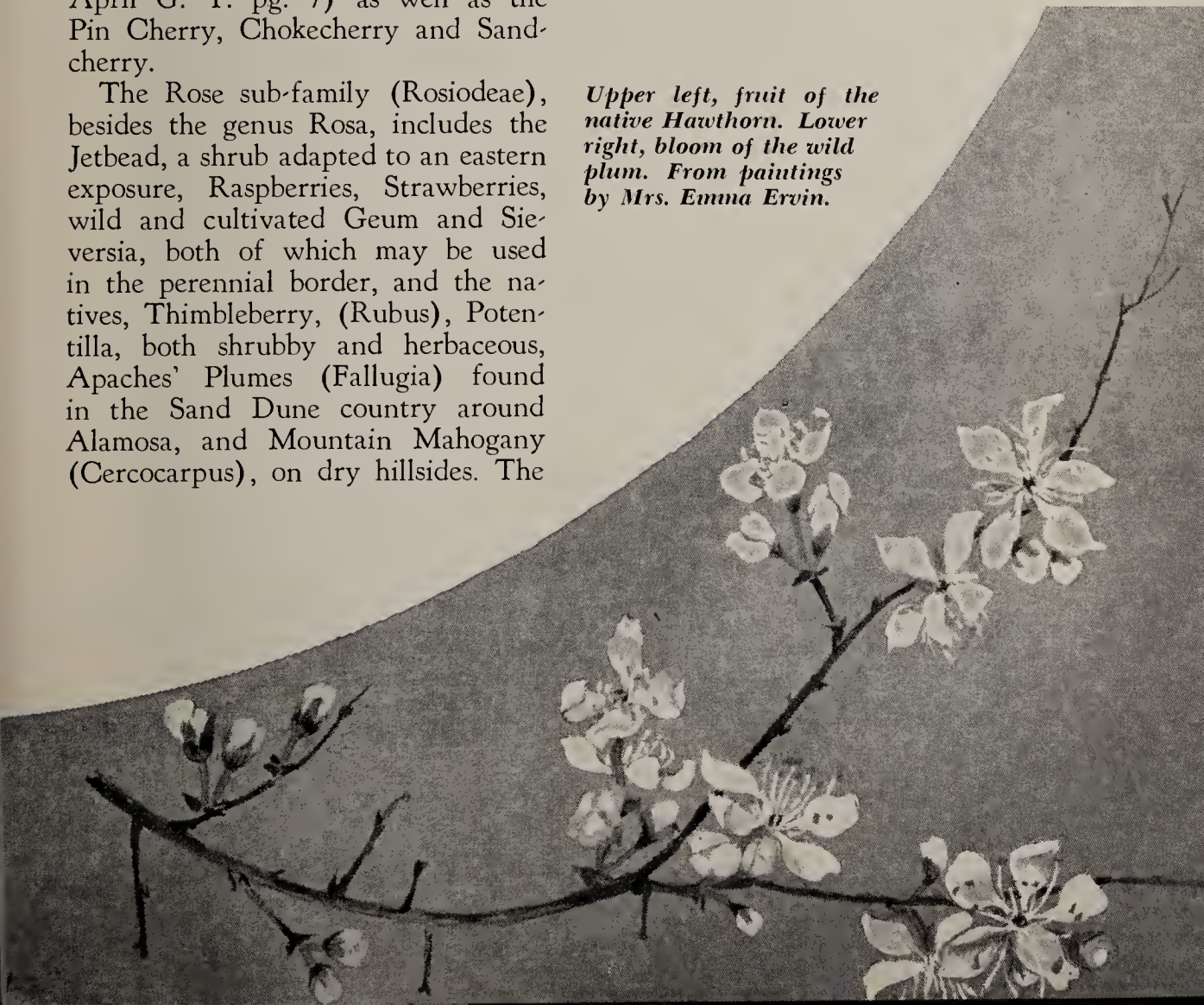


Alpine Potentilla

low woody *Dryas* and the *Sibbaldia*, as well as the tiny *Potentilla*, have ventured far into the Alpine fastnesses to carry the family banner.

With this background, remarkable for both hardiness and beauty, it is scarcely a surprise to find in the modern Rose almost an ultimate achievement in perfection of form and color.

Upper left, fruit of the native Hawthorn. Lower right, bloom of the wild plum. From paintings by Mrs. Emma Ervin.



Richards' Roses

. . . incomparably better



**Do not be misled! RICHARDS' ROSES are sold ONLY at
RICHARDS' in Fort Collins**

There is Nothing Like Them in This Region!

(Several nationally-known rosarians who dropped in on us last summer on their coast-to-coast tours were kind enough to tell us there is nothing like them in the entire United States.)



Already planted and started for you, Richards' Roses are growing in large pots in specially-prepared soil, fertilized to insure rapid and permanent growth and bloom. The acquisition of about 160 pounds of the finest rose soil with each dozen roses purchased entirely disposes of all questions as to the adaptability of your garden soil to growing roses and insures success the balance of the season.

Planting in Your Garden Is Reduced to the Ultimate in Simplicity and Ease! You Can't Fail with Richards' Roses

Richards' method of handling roses is no experiment but proven best after 10 years' experience with many thousands of plants. Times without number customers who one year timidly tried one or two have come back again and again, buying one to five dozen at a time. They will never again be satisfied with old-fashioned naked-root plants. Neither will you, once you try Richards' Roses.

PLANT NOW! IN FULL BLOOM!

Over 100 varieties finest 2-year budded field-grown hybrid tea roses (including both the 1949 AARS and the best of recent AARS), polyantha roses, climbing roses. Drop in soon and see a wonderful show and select your roses while we have an excellent supply.

(For sale only at our gardens—cannot be shipped.)

Northern Colorado's Garden Center

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*In Richards' greenhouses and in Colorado's finest garden store: SO MUCH to make
outdoor living and your gardening less work and more fun!*

WHAT'S A WEED?

Drawings by LORENE SMITH

HAVE you ever carefully watered and guarded tiny seedlings in your garden to find out later to your dismay that they were weeds and had taken your garden? Here are 15 to be sure to pull!

LAMBS-QUARTERS. When young is a more palatable green than spinach. Seeds readily, so is found everywhere. Easily eradicated from lawns by regular mowing.



DANDELION. When found in mountain meadows it is called "*Taraxicum officianale*," but when found in lawns it is called x?!!xx. With the coming of 2,4-D it may be easily eliminated. Public lawn enemy No. 1.



YARROW. In a lawn it may establish itself as an almost complete mat. Is found as a native plant from the plains to the tops of the highest mountains. Eliminated by cultivation or spraying.



COMMON PLANTAIN. Public lawn enemy No. 2. Usually found in poor soil, or overwatered, shady lawns. May now be eliminated with 2,4-D sprays.



WILD MORNING GLORY. One of the most difficult weeds to eliminate as it spreads from underground runners. May now be destroyed with 2,4-D.



COMMON MALLOW. Common, indeed, in most new lawns. Hugs low to the ground and chokes out good grass. Easily dug, as it has just one long tap-root.



PROSTRATE PIGWEED. Common, especially in dry places. Seeds readily, but easily destroyed when young, by cultivation. —————→

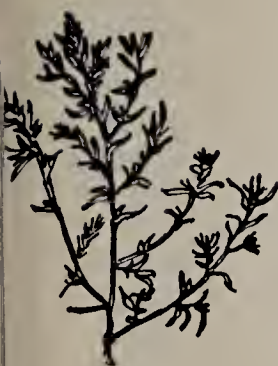


MEXICAN FIREWEED. (Kochia). Almost as generally distributed as the Russian Thistle. Also easy to eliminate if gone after when it is small. ←—————

WILD LETTUCE. Another weed which is much better than spinach when young. We will have to teach a lot of people to eat it, however, before it becomes extinct as it is a liberal seeder. Easily destroyed by cultivation or mowing. —————→



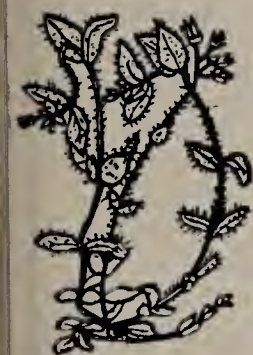
RUSSIAN THISTLE. It evidently likes America. Widely distributed all over the West because of its "tumbling" habit when the seeds are ripe. Easily destroyed when young, by clean cultivation. ←—————



CRABGRASS. "Suddenly it's fall" when the first cold nights make the crabgrass in a lawn stand out prominently. An annual, but seeds freely, and these produce new plants in June. Several new chemical preparations have been developed in recent years which will kill both the crabgrass and the seed without seriously damaging bluegrass. —————→



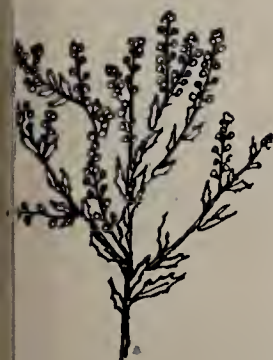
MOUSE-EAR CHICKWEED. Rather pretty, little, notched, five-petalled, white flowers. Persistent in lawns, but can be controlled by the use of the modern weed killers. Your canary will enjoy eating it if you do not. ←—————



CREEPING BELLFLOWER. The cancer of the garden. Spreads by underground roots which are very difficult to destroy. Not affected by one spraying of 2,4-D. Innocently spread from one garden to another by gifts from neighbors because of its beautiful blue flowers. About the only control is frequent cultivation or sifting ALL the roots out from the area it occupies. —————→



PEPPERGRASS. One of the many common weeds of the Mustard family. Seeds freely and spreads rapidly, but easily eliminated by cultivation or mowing, as it is an annual. ←—————



PURSLANE. Very persistent little plant because its leaves are so succulent that it can lay out all day in the sun without roots and still take root and grow if later covered up. Also forms seeds when very young. Another good salad plant. —————→



THE AMERICAN IRIS SOCIETY

BY NINA WINEGAR

Regional Vice President

SINCE 1920, The American Iris Society, which is national in scope as its name implies, has functioned as co-ordinator and mentor of the enthusiastic group of people who have followed with keen enjoyment the fascinating development of their favorite flower. Under the sponsorship of the American Iris Society, all introductions are registered and judges are appointed in every region to check them and observe new seedlings which are grown by the thousands in hybridizers' gardens over the country. Annual meetings are held, this year at Portland, Oregon. Four Bulletins are issued each year with reports from all parts of the country, and comments on both new and older varieties, together with the best of information available on culture and kindred subjects, with many good pictures for illustration.

Colorado has long been prominent in the Iris growing world and was recently given regional status in the American Iris Society, having been made into a new Region 20.

Many of the latest and finest introductions are to be seen in Denver gardens. A list of these gardens may be placed on the Bulletin Board at Horticulture House with days and hours they will be open to visitors. Mr. Everett L. Cline and Mr. R. E. Ewalt have charge of the treks being planned for Pueblo, Boulder and Colorado Springs. Notices of these will go by mail to the membership of Region 20. Membership in The American Iris Society, dues \$3.50 annually, is the only requirement to all privileges of Region 20. Mrs. John Newman, of 5152 Newton Street, Denver, is the membership chairman for the state.

IRIS—MAXIMUM BEAUTY FOR MINIMUM EFFORT

BY RICHARD D. HALL

THE newer varieties of the tall bearded Iris, colorful and dramatic in their wide range of colors, are the center of attraction in every garden where they are grown. However, compared to the culture of other flowers yielding a similar amount of bloom, the growing of Iris is the essence of simplicity. Any gardener, experienced or not, by following a few fundamental rules can be practically guaranteed luxuriant bloom.

LOCATION. The spot for your iris plants should receive full sunlight for at least half the day (and

preferably more) and should not be a spot where water will stand during a wet spell. The clay soil found through most of the state needs no "conditioning," but will grow iris with no more work than a little cultivation to keep the weeds away and the top soil loose. When picking that spot, do remember though that your plant is going to grow much, much larger.

PLANTING. Having picked your location, spade over the soil in the area down the full depth of the blade. Then dig out a shallow hole with a

ridge across the center of it, place the rhizome (the bulbous roots of the iris) on the ridge, spread the roots on each side, pack the earth on top of the roots and water down thoroughly. Though the iris is not finicky as to its depth of planting, it is desirable for the top of the rhizome to be about level with the bed. The top half of the leaves of the plant may be clipped off after planting to reduce the evaporation rate while the plant is getting established (but only then—do not do it in the fall).

WATERING. The tall bearded iris is indigenous to arid country and needs practically no watering to live. However, to grow and bloom freely, the iris plants in Colorado should be watered thoroughly about once a week during the growing season, and even oftener during the blooming season. This assumes the usual watering by sprinkling—if done by irrigation once every 10 days or two weeks would be sufficient.

FERTILIZING. If the iris is planted in previously untilled soil, no fertilizer should be used for at least two years. After iris has been grown for some years in the same place, bone meal or the sparing use of well-rotted cow manure is recommended. The application of wood ashes is also helpful. Do *not* use any commercial fertilizer or sheep manure—they tend to produce a lush growth of the

leaves but very poor bloom.

DISEASES. This point is easy to cover in Colorado. If you've given your plants adequate sunlight, drainage and room, there are no diseases of the tall bearded iris in this state which you need worry about. Root rot and the iris borer, if they do appear, should be treated by the removal of the diseased portion of the plant and the remedying of the basic cause of the plant's weakness, such as insufficient drainage or sunlight.

DIVIDING. In three to five years the little rhizome that you hopefully planted will have multiplied into a large clump of iris in which the rhizomes will be so crowded that they will be growing over one another. At that point, the whole iris clump should be dug up and the rhizomes separated from each other (the easiest method being simply to pull them apart and then cut off with a knife any resulting ragged edges). Some of the old rhizomes in the center of the clump will be dead, and these should be thrown away. The remaining ones can now be replanted to bring you the pleasure of mass bloom of five, ten, or possibly even fifteen beautiful plants in place of your original one. By the time your original plant has multiplied to this point, I am sure you will agree that no other plant gives so much beauty for so little effort.

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KEEP INFORMED

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Josephine at 5th **FR 2745**

A Complete Line of Bedding Plants



From a single rhizome planted in 1942 this crowded clump was overdue for dividing in 1947. Note rhizomes growing over one another in center of clump.



After being dug, clump was cleaned with stream from hose. Note that healthy, growing rhizomes circle the clump, while those in center have very few white feeding roots.

HOW TO DIVIDE



Place rhizome directly over center of ridge and spread feeding roots evenly to each side. By spreading roots to either side, the plant is securely anchored.

Pictures courtesy the National Iris Society from the recently published book, "The Iris, An Ideal Hardy Perennial."



Healthy, growing rhizomes are separated from old bloomstalks. Some prefer "doubles" as in foreground for replanting. Wash rhizomes thoroughly before replanting.



Before planting a new bed of iris, dig in plant food and cultivate well. When ready to plant, dig two slanting holes, leaving a dividing ridge in the center.

AND PLANT IRIS

Pull dirt in toward plants from either side. By pressing on top of root, proper planting depth may be regulated. Firm with foot and water well.



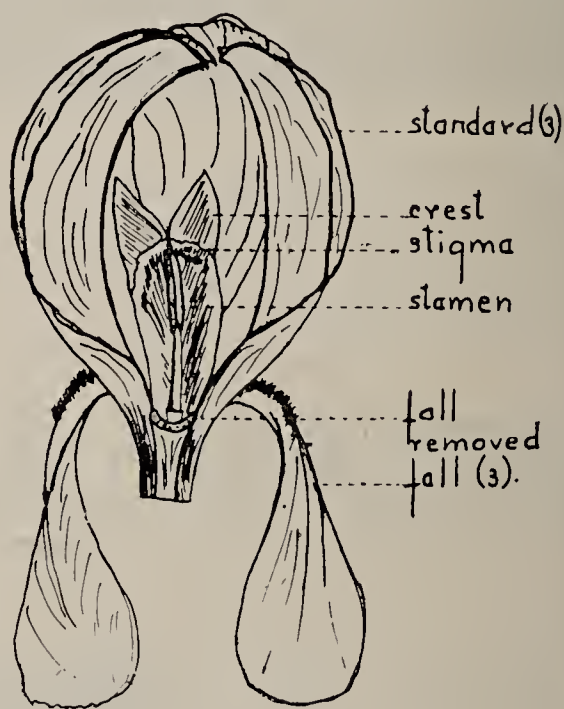
IRIS HYBRIDIZING

H. M. SHULENBURG

ONE of the most fascinating hobbies is hybridizing iris. The "Iris Bug" really gets you about three years after you have made your first cross. It takes from two to three years under ordinary growing conditions before the seed develops into a root or rhizome and plant that produces a flower stalk. What a surprise when the big moment arrives. Each morning your curiosity gets the best of you as the bud and stalk burst forth from the fan of leaves. Every inch it grows and as the bud develops, takes on color and expands, you become more impatient for a first look at the flower, something new under the sun, the results of your first effort at hybridizing. You may be so curious you attempt to unfurl the bud, but in a few days the flower flares out into the morning sun. Who knows, it may be a new color break. Most likely it will be just like the varieties in your garden for usually only one out of several hundred will hit the "jackpot." It is the gambling instinct within you that starts you off to something finer, something more outstanding in color, form, substance and beauty that ever existed before. When this happens, you are on the way to many hours of real enjoyment. It is patience plus the optimism of creating the unusual and a "real iris" that makes hybridizing one of the most interesting and worth while hobbies.

Now if you are interested, here is the technique to follow. First, let's see how Mother Nature has set the stage. The iris flower has three "standards." These are the upper petals, usually domed and arched. Below either flaring or slightly drooping, are three more petals known as "falls." In the heart of the flower are

three stamens, usually loaded with pollen. Above the stamens is an upward flare best described as a crest. Very convenient to grasp with the fingers as if it were made to order. Just beneath this is a small flap, ridge, or shelf like part of the crest known



as the "stigma" or lip. This is the receptacle for the pollen.

Nature uses the bee—must be a big bumble bee for real success. The process is simple. A bee makes a landing field out of the falls, pushes into the flower's heart where the nectar lies and the bee's back brushes against the underside of the stamens, acquiring some of the pollen on its back. To the next flower for more nectar and a real "cross" as the bee enters, the shelf like "stigma" or lip just beneath the crests, scrapes off the pollen grains from the bee's back, and the process is complete.

Hybridizers duplicate the process. Using a pair of tweezers, they re-

move a stamen covered with pollen from one flower. This is known as the "pollen parent." Select a flower on another plant and this plant or flower becomes the "pod" parent, and if the cross is successful, the seed pod will grow and develop on this plant. Using the fingers of the left hand, take hold of the crest, described above, pull them back slightly and brush the stamen and powdered pollen onto the "lip" or stigma. Usually if the flower is ready and receptive the sticky substance present causes the pollen to adhere. The cross is complete. If it "takes" in a few days, sometimes only a few hours, the flower starts to shrivel and the pollen grains pass down the inner parts of the flower and the pod of seed starts to develop. By early fall the pod looks like a pickle and you will soon see the pod crack open and expose the seed.

It is not necessary to place the pollen on all three parts of the flower, the three stigmas, but this is the better practice, three times makes it more likely the cross will "take." Crosses do not always "take" or produce seed. Varieties differ in fertility and some refuse to "take." About one in five or six crosses is average.

In the fall, plant the seed in rows about $\frac{3}{4}$ to 1 inch deep, and maybe the following spring they will germinate. Some seed take two or more years. Tests have shown as many as ten or more years to germinate but this is too long to wait so most hybridizers destroy their seed beds after the second year.

This article is only written to cause you to get the "bug" to get interested in a most interesting hobby. Try a few crosses this year. I am sure you will follow through.

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LONG'S GARDENS

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FOR A COLORFUL GARDEN, USE IRIS

H. M. SHULENBURG

GARDENS, like the people who make them, are never alike. Haven't you ever noticed, too, some of the characteristics and personalities of the individual reflected in his garden. Some are neat and trim, others are unkept. Some show definite planning, others just a hodge podge of plants here and there wherever the spade seemed to find a space. But, after all, it expresses the ideas of the gardener or gardeners who create and work in them and to them it is "My Garden."

The fact that most gardens change from year to year is due to new ideas acquired by the owner. New plants, new varieties, a color scheme, a rock garden, a pool, some inspiration acquired someplace and the desire to fit it into one's own garden to make it more colorful and attractive. New ideas keep up interest and without real interest, of course, no garden can be a success.

I have noticed that most gardeners usually have one "favorite flower" and this makes for more pleasure and enjoyment.

If you do not have such a "favorite flower," let me suggest Iris — the Ideal Hardy Perennial. You can use it for that accent of color and contrast needed, for when it comes to versatility, it leads the garden parade.

Too many people, when they think of iris, think of the "Flags" of grandmother's day. Once you experience the thrill of growing modern hybrids, you will promptly dispose of the common yellow and blue "flags" that seem to crowd out everything else.

Iris have been greatly improved during the past 15 years, practically every color and hue of the rainbow can be had. They bloom over a

longer period of time, size has been increased, fragrance, clear colors, blends, form has been refined, substance increased so they are more weather resistant and thousands of varieties have been registered and named, all available to you. A fine selection can be had at very little expense, not only of bearded varieties of the dwarf, intermediate or tall types, but beardless varieties such as Siberian and Spuria. These bloom late—July and August. In addition to these, there are the Japanese and Species types but these do not do so well in our climate and soil.

Use iris in your garden for color. Before you obtain new varieties, visit other gardens, see them in bloom, select the ones you like for beauty, size and color. If you have a formal arrangement, they can be grouped in separate beds or help make up a formal border. Your color can be controlled, for you will find just the color in some variety that will fit into your color scheme. Likewise, you have various shades of light or dark, clear or blended to choose from.

Most gardens do not follow the formal pattern and a wide preference seems to be for borders, irregular in shape surrounding a lawn. Use iris in such a border freely. Space them throughout the border, letting each variety form a clump. Iris are usually planted using a single rhizome which will increase in a year or two to a clump. Since they follow the early spring bulbs in bloom, blooming the latter part of May well into the middle of June, they go well with Peonies and Oriental Poppies. Try them in front of a background of delphiniums, especially the Pacific Hybrids. Be careful of color combina-

tions so you have proper balance and contrast as this is important. They can be obtained in almost every color from the white to almost black, blues, reds, yellow, violet and all the shades and hues of the rainbow. The last few years, something new in color has been added. Shades of pink and salmon with fiery red and tangerine beards. They are new color breaks. The "Sea Shell" pinks originated by Dr. Loomis of Colorado Springs and "Flamingo Pinks" of Mr. David Hall of Wilmette, Illinois, lead the field in this color class.

The Bearded Iris, which is the best known and most used in our present day gardens should be supplemented by a few of the later blooming varieties to extend the blooming season well into July and early August. Try a few Spurias. You see them in the flower shops. They can easily be grown around a pool or in

your perennial borders. They need no special care and are perfect borders. Several varieties can be obtained, white, cream, yellow and several shades of blue. Siberian Iris, with their small flowers and grass like foliage and wiry stems are also ideal for around a pool, with garden or perennial border. These varieties are wonderful for flower arrangements and bloom at a time when garden flowers of other kinds are not in bloom and available.

A perennial border should always present a continuous display of color and beauty, keeping in mind proper balance and contrast of color. Iris grow in so many colors, and patterns, high and low, early and late, which makes them the ideal key for your entire color scheme. For a better garden and a colorful one, one that your friends will rave about, use not a few, but many iris.

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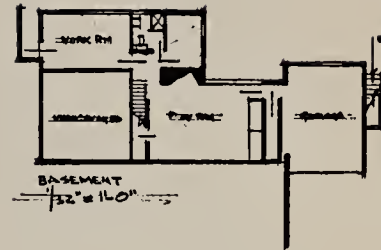
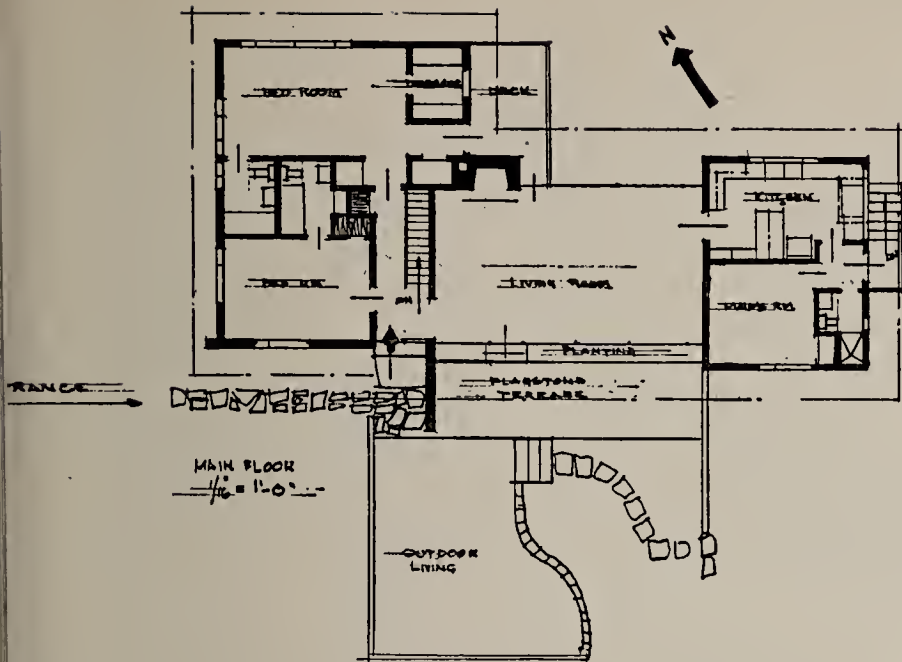
JAN RUHTENBERG, A.I.A.



THE essence of a contemporary home is derived from two primary principles: the plan based upon the life of the family to occupy the home, and the use of logical building materials. The outer form of a house developed on these thoughts becomes a three dimensional realization of the plan, designed around the activities and interests of the client and his family in terms of the material employed. By creating a house from the inside and using a free form instead of being tied to a copy of our forefathers' expression of form, we are free to design our contemporary homes only for the comfort and requirements of our age. It is hardly necessary to explain that our post-war way of living is greatly influenced by the changing economic and social changes in this country. Where Eu-

rope and South and Central America went through a great change in their way of living after the First World War, our country has experienced the change only after the end of the last fighting.

Most of the old houses have become a burden on the modern housewife and her family, not only because they have too much waste space and were designed for upkeep with a staff of servants, but they were built for a generation that was afraid of sunshine and outdoor living. Their life was grouped around the parlor which today seems to us stiff, unfriendly and unlivable. The view of the mountains was not included in their life, and sunshine was carefully kept out by drawn shades and heavy drapes in order to protect the furniture as well as the light, white skins of the ladies.



All of the houses in our suburbs faced the street without considering the exposure and view. Kitchens and the servants living rooms were the only rooms where the sunshine and view predominated since it was considered wrong to have those rooms face the avenue.

To live today in such a house becomes a trial; heating and cleaning bills grow into an economic menace for the average contemporary family. Parlors, reception rooms and waste dining halls become a burden to the modern family. To-day we know how to use the sun for our main heat factor during the winter, especially in our Rocky Mountain region where even in sub-zero weather the sun has the strength to bring the tempera-

ture up to 90° and higher, to melt the butter on the early winter morning breakfast table and to keep the furnace from running until sunset. By facing the house to the southeast and enlarging the windows or using glass walls, we have solved not only the heating problem, but we have opened the house to the garden so that the latter now becomes a part of the house and forms an outdoor living space which is part of the indoor one.



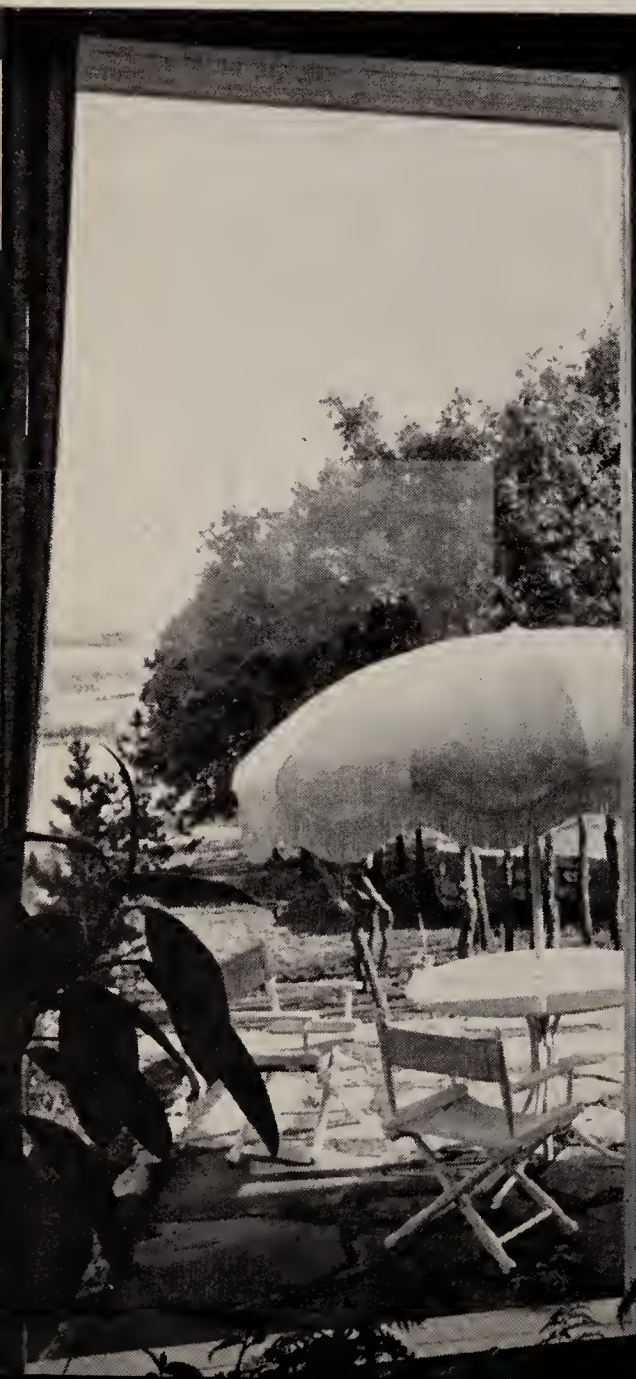
The living space is designed to live in during every moment when the family or part of the family likes to be together. Fireplaces, furniture, pictures

and sculptures are designed and chosen for living. Perishable silks and damasks of the old parlor have left

this family assembly room. Instead of murals and flowered wallpaper, the view of the Rocky Mountains has become the main wall decoration of the living room.

This is why the designer has to incorporate the garden plans when designing the house. The glass wall gives the family enough protection, and in case the elements become too unattractive, simple drapes may be pulled over the glass. Since only a transparent wall separates the indoors from the outdoors, the flowers can be grown the whole winter on the inside of the glass, benefitting

from the sun, and bringing the garden right into the indoor living space. If the location allows the house to be built in an open "U" shape so that a wing attached to each side of the living room forms a sheltered patio, in our climate this makes it possible to use the so-achieved outdoor living space almost the entire year. Thus the patio becomes a flower garden during the warm months, enlarging the above mentioned flower bed to any size. To us who are sensitive to nature's moods, this outdoor feeling leads to aesthetic appreciation and spiritual stimulation.





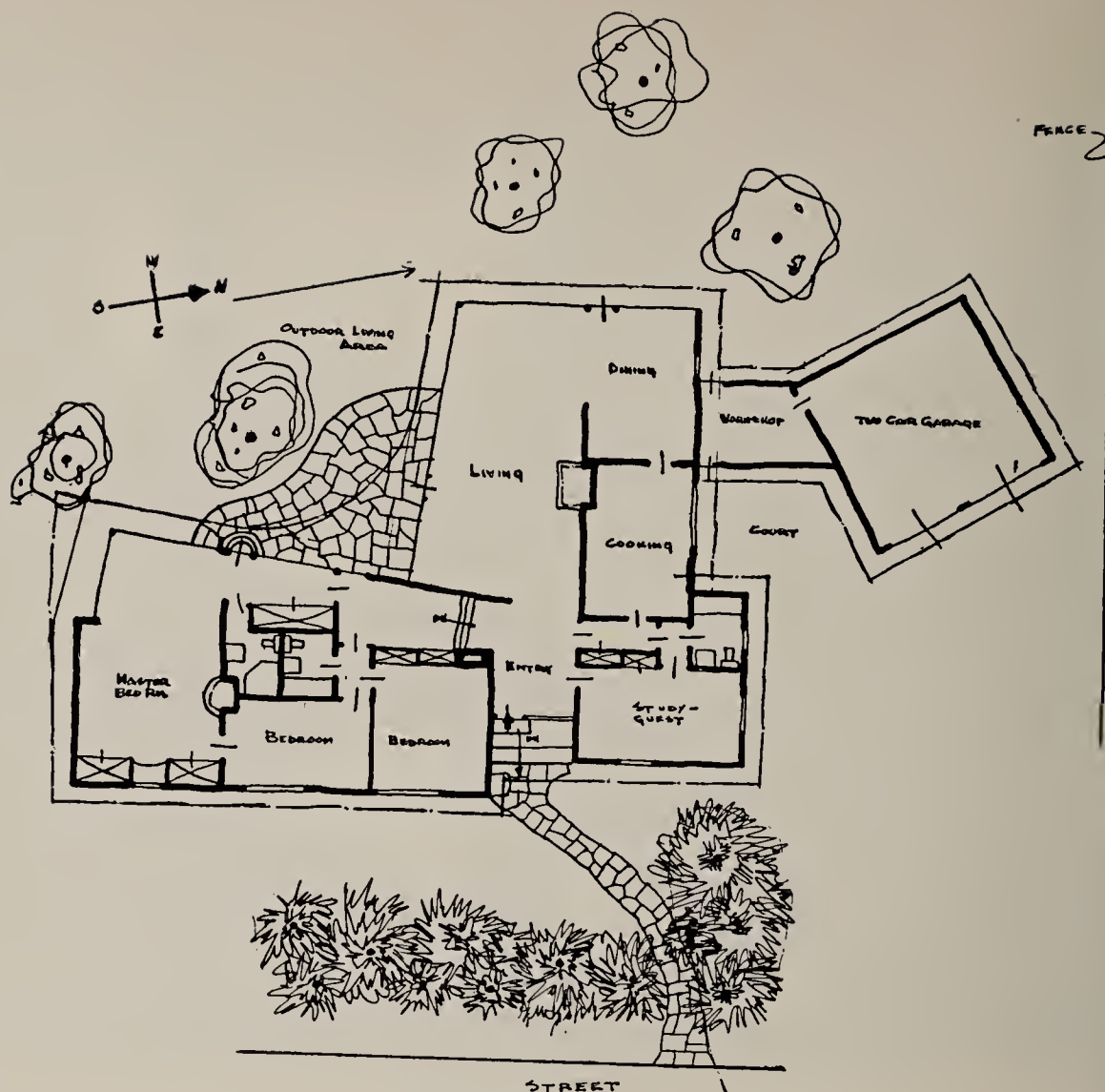
This is why the contemporary house is no mere shelter, but gives the occupant opportunity for unhampered and gracious living.

Taking into consideration the strong winds in this area, it is advisable to plan the house as a windbreak too; a second outdoor living space on the northeast side of the house becomes imperative. By providing large overhangs, these terraces actually become "open rooms," and add even to the smallest home, two more living spaces without considerable cost. In planning a larger residence, more wind-sheltered patios, terraces and outdoor living spaces can easily be added. This way we can protect the occupants from the elements and assure them pleasant outdoor living.

But we who live and build on the east side of the Rocky Mountains

have our best view to the west where the deep overhangs will not protect us from the hot sun in the late afternoons during the summer. The most pleasant solution of this unavoidable problem, it seems to me, may again be solved by planning. If we plant a few shade trees, in July and August when the evening sun heats the glass unbearably these trees will give ample protection by their leaves. We face the same problem in the mornings from the northeast, but in most cases the view here is not so predominant and we can take care of the morning sun by properly planning and facing the house.

Thus we see how the house and garden have become living units which must be planned together. Where a house designed in the old style had only to be surrounded by an his-



torical garden, the post-war home which divides itself into indoor and outdoor living spaces has either to be

solely designed by one person or with the close cooperation of the house designer and the landscape architect.



QUESTIONS AND SUGGESTIONS FROM OUR READERS

WHEN I am weeding or pruning in my garden, I always take out a large old cloth which I throw the weeds or trimmings on. As I progress around the garden, I drag the cloth with me, so that when I have finally made the rounds of the garden, I need not rake or clean up after myself, but simply trundle the bundle to the dump heap.—MRS. A. MOORE.

In order to avoid having your hose twist and kink as it does when you coil it in a circle, try coiling it in a figure eight design. You will find that the hose is easier to wind and unwind, and will not kink.—JIM HAINES.

Have you found how useful your child's wagon can be in the garden? I use mine for hauling potted plants from the potting bench to the patio, for bringing peatmoss to the bed I am cultivating, for carrying the flats of bedding plants I have just bought to the place I intend to plant them. It is easier to wheel than a wheel barrow, and on account of the fact that it remains level, is more satisfactory for carrying potted plants.

—MRS. J. TIPPIT.

I got so discouraged in dragging the hose from one part of the gar-

den to another to find that I had injured a plant on the edge of a bed, that I have now put stakes at the corner of all my flower beds to prevent this type of injury.—F. M. I.

For a convenient cultivating tool in very crowded beds, try bending a tire tool to L shape, drill a couple of holes in it, and bolt it to an old broomstick. You will find it a good addition to your garden tools.—MARTIN KEUL.

In cutting roses, I find that if I use the following procedure, the roses last longer in the house than on the bush. Cut them with a clean cut when in a loose bud early in the morning while they are still cool. Pull off the lower leaves and hold the lower inch of the stem in boiling water and set in a cool place for a few hours until the stems are soaked full of water. The use of Floralife or other commercial preparations in the water will help keep the flowers fresh, but if you don't have the other preparations, one teaspoon of powdered alum to a quart of water is equally effective. Keep the arrangement in a cool place and out of drafts, and you will be amazed how long the bouquet will remain fresh.—MRS. EARL DAVIS.



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GARDENING REMINDERS FOR JUNE

FINISH planting out tender annuals early this month. Clumps of perennials may be planted at this time if they are not too nearly in bloom. Some of the nurserymen carry roses, various perennials and even a few shrubs and vines in pots which may be planted out at any time.

Many weeds that appear in spring in a fall seeded lawn are annuals and may be eliminated by a few mowings. If they are kept from smothering patches of the lawn they may even do some good by shading the surface and allowing the grass to get a good start. The perennial weeds may be largely eliminated with a spray of 2,4-D when the grass is well established.

Get the jump on the weeds. They are easy to eliminate when they first start, but a few weeks later they are a real back-breaking chore. In the meantime they have also robbed the soil of valuable moisture and food.

Try putting a thin layer of peat or vermiculite on your ground every time you cultivate and see how it simplifies weeding and how much less caked the tops of your beds stay in the hot days to follow.

Use one of the attachments for sub-irrigation which you can fasten to the end of your hose, and you will find that a deep watering every few days will benefit your plants far more than a superficial sprinkling every day. Watering underneath will prevent mildew on those plants which are susceptible to this disease.

Inspect everything every few days now for signs of the appearance of insect damage. Especially look for the start of aphids on the tips of spruce, spirea, dogwood and many other plants. Curled leaves will usually indicate these. An ounce of prevention here is worth many pounds of cure. Nicotine sulphate (Blackleaf 40), Pyrethrum, Rotenone and several new preparations are effective, but you must hit them to kill them.

Shrubs which have bloomed may be pruned now. Do not shear back the Bridal wreath spirea and such naturally arching habit shrubs. Flowering almond and the early Garland spirea should be sheared back to keep them from becoming thin below with age.

Do not remove ALL the suckers from around lilac bushes. Leave a few of the most vigorous to form new growth to cover the bare stems of older growth. Some of these very old stems may be taken out down to the ground each year if a young vigorous looking bush is wanted.

Watch for suckers of wild plum coming up from below the graft in flowering plum and flowering almond. These can usually be identified from the different shaped leaf and more vigorous growth. If these suckers are not removed they will gradually choke out the better double flowering grafted top.

Don't cut the leaves from your tulips, hyacinths, narcissus and other fall planted bulbs, but leave them on to manufacture food for the formation of the new bulb which will bloom next year. If these ripening leaves look unsightly they may be tied together, staked down or hidden by a planting of annuals.

Many red spiders have overwintered on evergreens and shrubs. Spray or dust with sulphur or one of the new miticides. They may not do a great deal of damage until hot weather, but they may be prevented from building up a large population by starting your control program now.



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July, 1949

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Outdoor Living in the Rocky Mountain Area



CONSERVATION OBJECTIVES

An Extract from talk given at the Inter-American Conference on Conservation of Renewable Natural Resources, Denver, Sept. 7-20, 1948.

GEORGE E. BREWER, JR.

The Conservation Foundation, New York 16, New York

OUR objective must be to bring young citizens to a realization of the vital necessity for living in harmony with nature, to teach them how to do so, and to inspire them with the conviction that it is a moral and patriotic duty.

We must recognize that the vast majority of the population are out of touch with natural relationships, ignorant of conservation principles, and prejudiced against change. This is reflected in the fact that less than one percent of the expenditures of the United States Government is directed toward conservation of natural resources. Other impediments to con-

servation are pressure groups interested in exploitation, outmoded thinking and practice in academic institutions, over-specialization of knowledge, and failure to relate one field of inquiry to another.

An education plan is needed which will lead not to restrictive legislation but to the appreciation by an individual of his duty to his neighbor. The landowner must be taught to regard himself as a trustee with a responsibility to future generations. Our children need to realize that the earth is the mother of us all and that an injury to her by one is the concern of others.



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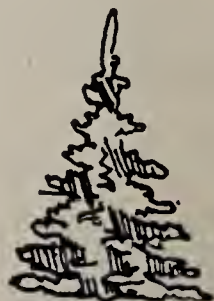
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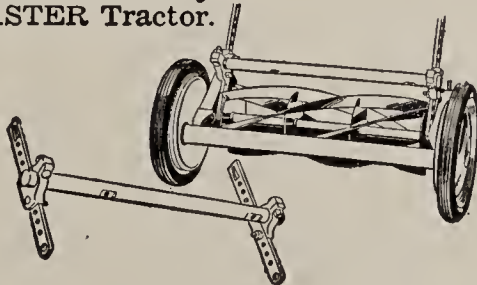
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PROLONGING THE LIFE OF CUT FLOWERS

BY MYRTLE R. DAVIS

HOW to keep flowers fresh longer after they have been gathered and brought into our homes to be used for floral decoration is of general interest to all gardeners.

If we know when to cut them, how to cut them, and how to treat them after they are cut, they will last a great deal longer. Some will even last longer cut than they would if left in the garden.

The first and most important thing to remember is to cut them either in the early morning before the sun is on them or in the evening after they have cooled off from the heat of the day. Flowers picked in the heat of the day will not stand up in water for they cannot take up enough water to keep up with the evaporation from their flowers and leaves.

All cut flowers should be placed in a deep pan filled with cool water in a cool room for at least two hours before they are ready to arrange. Those picked in the evening should stand in the deep water all night. By doing this their stems, leaves, and flowers are full of water and they can better keep up with the evaporation after they are arranged in bouquets.

Cut flowers should never be placed in a draft. This changes the air around the flowers rapidly and evaporation is excessive. When the evaporation exceeds the intake of water through the stems the flower wilts.

All blossoming shrubs such as lilacs, mock orange, flowering crabs and all flowers with woody stems keep longer if the stems are split or crushed to increase the absorbing area and let more water into the stems. They should all be placed in deep water immediately.

Some of the excess foliage should be removed so that it will not transpire more water than is necessary.

Roses should be picked when they are still in a loose bud stage. They should have the bottom leaves removed and the lower inch of the stem held in boiling water for about a minute. One tablespoon of powdered alum to the quart of water is recommended for roses. "Floralife" and other preparations for preserving cut flowers work very well.

Poppies should be cut the night before they open and the ends of the stems singed in a hot flame. This increases the ability of the stems to take up water, as carbon is porous and does not decay. Stems of the Dahlias, Poinsettias, Iris, and Heliotrope should all be singed.

Hollyhocks make excellent cut flowers if their stems are dipped in nitric acid.

Chrysanthemums, Nasturtiums, and Asters keep better if a little sugar is added to the water.

Delphinium, Larkspur, Gladioli, Sweet Peas, Sweet William, and Zinnias all are said to keep better if from one to two tablespoons of alcohol is added to a quart of the water in which they are placed.

Water lilies should be cut in a tight bud with long stems and kept in a pail of water in a dark place until needed. When they are to be used, the stems should be cut off leaving an inch or two. If they are arranged in a shallow bowl and placed in the sunlight they will open soon. To keep them from closing in the evening, drop a little candle wax in the heart of each blossom.

Wilted flowers may be revived by placing them in warm water to which a little vinegar has been added and giving them a fine spray on the tops until they revive.

The use of other chemicals, such as oil of peppermint, is recommended, but this use is not nearly as important as cutting the flowers in the cool of the day, soaking the stems full of water, and keeping them away from drafts.

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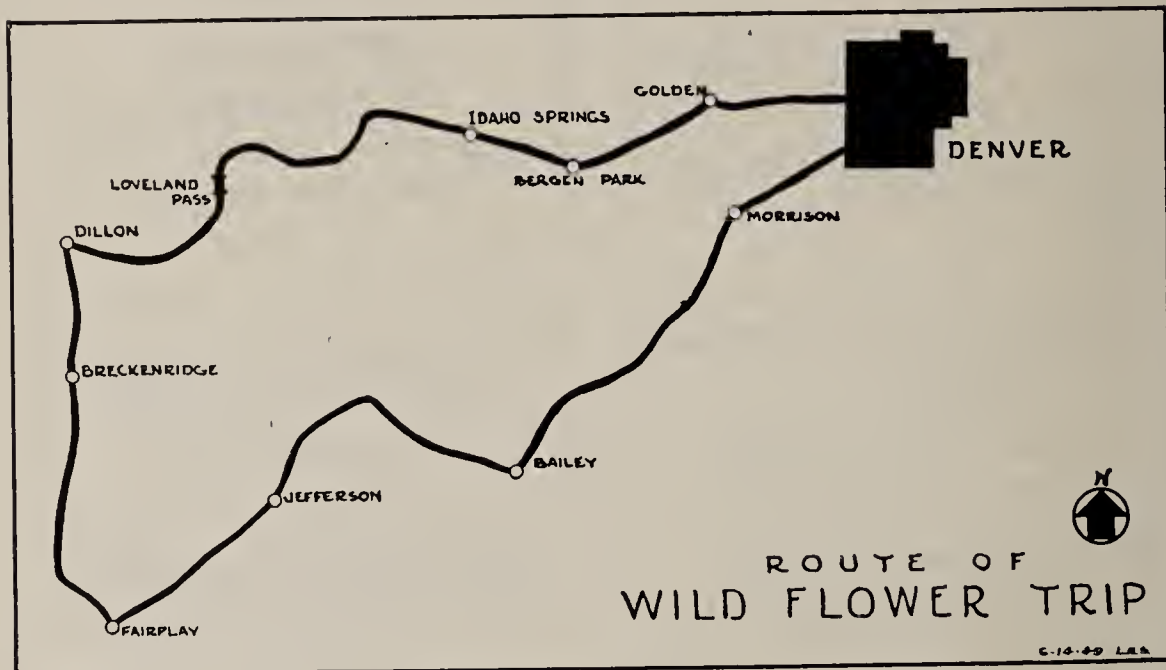
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A TRIP TO SEE COLORADO'S WILD FLOWERS IN JULY

WITH GEORGE KELLY



DURING July more kinds of wild flowers can be seen in Colorado than at any other season. A few of the very early ones in the lower altitudes may be gone, but it is not until this time that the really attractive

flowers of the Alpine regions are in bloom. A variation of 10,000 feet in altitude can be found within the state. This allows for a great variation in variety of flowers and in season of bloom. The plains flowers must come out early to be able to ripen their seeds before the hot, dry weather of summer, and the alpine flowers are not free of snow until almost summer, when they must hurry up to do their year's work before the fall snows begin.

To see the greatest variety of flowers in a one day trip from Denver we might go west on highway 6 through Idaho Springs, over Loveland Pass then south through Dillon and Fairplay, then turn back through South Park and go back down Turkey Creek.

Will you go with me?

As we drive west from Denver the first flower that we will see will be the Annual Sunflower. This may be the state flower of Kansas but it is



equally plentiful and beautiful here. Then the *Prickly Poppy* with its large, delicate, white flowers will be occasionally seen. The small *Golden Aster* may be noticed lining the roadside with its masses of little sunflower-like flowers. Occasional *Prickly Pear Cactus* and *Yuccas* will give accent to the plants of dry slopes. In moister spots there will be occasional plants of the beautiful, tall lavender *Penstemon*, the *Horsemint* with its purple head of hair and fragrant leaves, and the *Abrovia* or *Prairie Snowball* with its fragrant white flowers. A purple *Thistle*, *Rocky Mountain Beeplant* or *Goldweed* may now be occasionally seen from the road.

As we approach the Hogback, that first wrinkle of the mountainous coun-



Above—Prickly Pear Cactus

Below—Yucca at seed time

In this article we have attempted to give you a brief outline of the outstanding things in bloom at this time, and to show with them pictures of the type of country in which they will be discovered. We suggest taking with you *Clements*, "*Rocky Mountain Flowers*", or *Pesman's* "*Meet the Natives*".





try, we will find a wealth of flowers, and will be struck by the predominance of the blues—Larkspur, *Lupine*, Harebell, *Spiderwort* and Flax. Some yellows will also be making a good showing, with the Perennial Sunflower, Coneflower, *Gaillardia*, Goldenrod and Sulphur Flowers very prom-

inent. Here we will begin to see bright splashes of red from the Paintbrushes, some pink from the Geraniums and occasional white spots which turn out to be *Mariposa Lilies*.

On the slopes, as we drive on up the road, there will be masses of Purple and White Loco Flowers and large patches of dark blue from the low blue *Penstemon*. White and Red Trumpet *Gilias* will accent landscape along the hills, and in the moister places by a little trickle of water we will see the large rhubarb-like leaves of the Cow Parsnip with its tall stem and large flat head of tiny white flowers. As we look closer we may see carpets of *White Violets* or masses of the small white flower of the Bedstraw. Some of the tall yellow Goldenglow may be coming into bloom. On up the slope we would see



*Wild
pink
Geranium*



Golden Banner, Thermopsis Montana



Indian Paint Brush, Castilleja

Gaillardia

plants of the Scorpion Weed with its dirty white fiddleneck head of flowers, the Miner's Candle with its frosty white spike, or the Green Gentian with its tall stem of interesting greenish flowers.

Along the steep road grades we will see masses of Wild Pink Roses and Red Raspberry bushes. Rocky slopes will be covered with the tiny fleshy-leaved Sedum with its yellow, star-like flowers held on short straight stems.

Now we will begin to see quantities of the various herbaceous Cinquefoils and Senecios with their numerous small yellow flowers. Open slopes and roadsides may give glimpses of the conspicuous "purple" bloom of the fireweed. Some of the large yellow, pea-like flowers of the *Golden Banner* may still be seen in protected places,





and the stems of yellow Wallflowers might be found on open slopes.

Rounding a bend in the road we catch glimpses of blue from our state flower, the *Columbine*, hiding under Aspen trees. The blue-to-pink flowers of the *Chiming Bells* should now be seen occasionally along the roadside.

As we get up above Idaho Springs, we will see, in very wet places, the white flowers of the Marsh Marigold mixed with those of the slightly yellowish *Globeflowers*, some yellow Buttercups and Purple Shooting Stars. Along the road will be occasional

bushes of the Red-berried Elder, and in rocky places the *Jamesia* shrubs with their orange-like blossoms. On sunny slopes there will be carpets of Pink Pussy-toes and Wild Strawberries, and on shady ledges masses of the tiny Dotted Saxifrage with its moss-like foliage. In moist, shady places under trees we will see the sunflower-like bloom of the Mountain Arnica on straight stems above their heart-shaped leaves.

As we begin to climb more steeply, we will begin to see, in moist places, the delicate pink bells of the Twin-flowers, *Baneberries* and some of the dainty *Pyrolas* with their little leathery leaves. In open, almost swampy places there will be patches of tall blue Delphinium or Aconitum. Along the roadside we will begin to see the Yellow or White Alpine Paintbrushes, mats of the Golden Smoke with their tiny little canaries roosting all through it, plants of the Purple Fringe with its pincushion-like heads of purple flow-



*White Violet,
Viola Canadensis*



Left—Dusky Penstemon



Right—Mountain Arnica

Below—Chiming Bells, Mertensia

ers, and groups of the *Dusky Penstemon* in purple and dirty white.

As we approach timberline we may notice the pale blue flowers of the Jacob's Ladder *Polemonium* showing under the willow shrubs and we may be lucky enough to see a few of the small purple Alpine Wallflowers. There will be many of the small yellow *Drabas*, occasional plants of the tall white Valerian or scattered spikes of the yellowish-white flowers of the Wand Lily. Scattered patches of the Fendler's Sandwort should be seen here.

Along the icy-cold little streams we will find the rich red heads of the King's Crown, the similar pink heads of the Rose Crown, the tall spikes of the Little Red Elephants or the purple spikes of the beautiful but malodorous *Parry's Primrose*. The streamways will be massed with the tall Chiming Bells





and white Bitter Cress with occasional patches of yellow Senecio.

As we get up above timberline we will be impressed with the masses of yellow from the various forms of Cinquefoil, and sticking up through this carpet will be the tall white plumes of the Bistort. Almost moss-like masses of Alpine Clover and Sibbaldia cover the ground and as we get out of the car and walk up the hillside we will see, close-up, the true dwarf alpines—Phlox, Pinks, Sandwort, Rock Jasmine, Fairy Primrose, Dwarf Skyrocket and the unforgettable blue of the Forget-me-not. Standing up above these tiny plants, looking entirely out of place will be the large yellow flowers of the Alpine Goldflower or Rydbergia. They will all be facing in the same direction as though worshipping the sun. The round heads of the dark blue Sky Pilot Polemonium will also stand out conspicuously. In open

spots we will see patches of the common, White Yarrow, such as grows in our lawns in town, and the common yellow Parsley. These will be very much like those that we know at home but very dwarfed. Blue and white *Daisies* of various sorts will here be seen, mixed among the other flowers. Under a rock overhang we may find a few of the tiny white Frail Saxifrage, the Dwarf Senecio with its red-green leaves, the tasty Mountain Sorrel or the Alpine Springbeauty with its pink blooms looking out from under the green leaves like a little chick peeking out from under a hen.

Among the rocks or standing alone among the other plants may be seen a few specimens of the large Fuzzy Thistle looking as though it was always frosty. Covering the ground in places will be the small white flowers of the Chickweed or tiny *Stellaria*. These will be distinguished from all the other small white flowers by their deeply notched five petals. Among the masses of other flowers we may look for occasional specimens of the small Alpine Lily.

We will drive on over the pass and turn off the road to the west until we come to the group of alpine lakes, where we may find the rare multiple-flowered Alpine Anemone, the *Snow Butternut* at the edge of melting snowbanks or the Mountain Laurel in mats along the little waterways. High up in the almost inaccessible places among the rocks we may find the rare and beautiful Alpine Columbine.

As we begin to drop down into the valley on the other side of the divide we will again see many of the same flowers as we saw coming up, but may catch glimpses of a few new and different varieties. We will take time to notice the Spruce, the Firs and the Pines as well as some of the common shrubs. Gooseberries, Bush Cinquefoil, Native Honeysuckle and Willows will be along the way. We will stop at a small stream that tumbles across the



Above—Polemonium

Below—Pyrola



Above—Baneberry

Below—Little Red Elephant





*Alpine
Clover*

road, quench our thirst with the finest water in the world and hunt for rare things like, Green Orchids and Blue Gentians as well as the ever-present Dwarf Willowherb and Trailing Veronica.

We will then drive over the high country past Breckenridge and Fairplay until we are stopped a while by the great fields of Blue Gentian, Iris, Shooting Star or Little Red Elephants near Jefferson.

Down the eastern slope into Turkey

Creek we review all the plants that we have seen going up and add a few more that have hidden from us before. Along the lower foothills there may now be some of the Purple Asters coming into bloom, and just as we come through the last Hogback we may see some of the tall yellow plumes of the Stanleya. If we look closely we may even catch a glimpse of a Woodlily or two back under the Aspen trees. Clematis may be seen climbing over the Hawthorn trees and covering them with a blanket of misty white.

All the flowers of this season or these altitudes could not be seen from the car in one short day, but these will be the most common and conspicuous. Do you realize that we have listed well over a hundred. If you really remember a half dozen of these the trip will be well worthwhile. Come again next week and we will learn another half dozen and find many new ones. Don't you think that it has been a lot of fun?

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Parry's Primrose



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WILD FLOWERS HAVE DECIDED PREFERENCES

BY FREDERICA LE F. BELLAMY

COLORADO wild flowers are unhappy with people who pick too many blossoms and crowd them together, who fail to shelter them from the sun on the way home, and then forget they need twelve hours in deep, cold water before they are arranged for a decoration. They do their grateful best for people who remember that all their species, except the lilies, need Flora-life when they are brought indoors—and who arrange them as they grew, not crowding them together but perhaps adding a few congenial, friendly varieties to keep them company. They appreciate people who put them outdoors at night. They look their loveliest for people who put them in clear glass or plain white, green, or black vases or bowls.

Many mountain and foothills varieties are ready now for flower lovers to enjoy. To be sure, the cuddly, furry early Anemones (Pasque flowers) that came away so willingly from the snow banks' edges to bloom cheerfully for days in shallow bowls, are gone, but their lovely color is repeated in later flowers that follow.

The indescribable blue-lavender comes again in wild iris. These fragile beauties resent crowding. They fear wind and sun once they leave their homes. Their deep cold water receptacle for hardening off must be where it catches the first dawn light or no new buds will open. Their own slender leaves are the most becoming green for them but they tolerate just a few stalks of Golden Banner if they are arranged in a low, wide bowl.

Friendly flowers come in June. They really try to repay even moderate care. Golden Banner is plentiful, a gay com-

panion for many shier comrades. The short, early Chiming Bells from the hillsides; the dark blue annual Larkspur, the short mountain Penstemons, all need the sunny cheerfulness of Golden Banner blossoms and the sturdy foliage, too. The blues and lavenders of the hillside flowers can readily assimilate a few heads of Painter's Brush and their familiar neighbors, the Wall-flowers.

Silvery Lupin with its grey-green foliage somewhat thinned out makes the most of being paired with velvety, wine-colored Loco. Odd companions these! One is so benign, one so dangerous for grazing stock.

When late June brings out the glory of the Columbines in the Aspens' shelter, Golden Banner grows nearby with taller and more delicate stalks than the earlier hillside blooms, setting off the Columbine color. The blue-lavender of the Columbine is the rarest of the variations of that unbelievably lovely shade. It is best shown in wide bowls, used sparingly together with Meadow Rue, its close companion of the aspen groves. No offense is given the proud blossoms by the addition of a few stalks of honey-scented, wild Valerian. If the Columbines are to be in a dark room, two or three Red Lilies draw proper attention their way. The diminutive snapdragons aptly nicknamed Butter and Eggs are so dainty that the Columbines accept their companionship graciously.

When the rains are exactly timed to suit them the Mariposa Lilies make a lavish showing of their butterfly loveliness. The rare tinted ones echo very faintly the lavender of earlier flowers, but the purple of their hearts con-

denses the color so they rival the beauty of all their predecessors. They are serenest with just Meadow Rue, some Blue Bells, and perhaps a few heads of the earliest Horse Mint.

From midsummer through September there are gay combinations of bright colors in field and wood. Clustered Purple Daisies; Gaillardias; tall, delicately branching Golden Rod; gold-centered Bur Marigold and Sunspots vie with Delphinium, Monkshood, deep crimson-velvet Strawberry Blite, and intensely blue high-altitude Penstemon. Ripening mountain grasses create the atmosphere that blends them all harmoniously and makes them feel at home.

On the other hand, Wild Roses are inconsolable if brought indoors. Their blossoms pine and die and later on their lovely autumn foliage shrivels and loses its rich glow. Autumn Asters that spread amethyst splendor on the hills are simply so bored indoors that they go to sleep permanently. Leave all such sun worshippers to open their blossoms to the sky!

To brighten September days indoors gather the clean yellow Ninebark twigs and red velvet foliage of Jamesia. Combine them with berry-heavy Juniper branches to tide over until the aspens are right for cutting and keeping through the winter.

Intimate flower friends are seldom called by long, formal names. All the same they may be formally introduced at times. An alphabetical list follows that translates the cosy nicknames into stately scientific designations.

Bluebells—*Campanula rotundifolia*

Bur Marigold—*Bidens levis*

Butter and Eggs—*Linaria vulgaris*

Gaillardia—*Gaillardia aristata*

Horse Mint—*Monarda fistulosa*

Loco—*Aragalus lamberti*

Mariposa Lily—*Calochortus gunnisoni*

Monkshood — *Aconitum columbianum*

Painter's Brush—*Castilleja miniata*

Pasque Flower—*Pulsatilla hirsutissima*

Purple Daisy—*Erigeron macranthus*

Silvery Lupin—*Lupinus argenteus*

Strawberry Blite — *Chenopodium capitatum*

Sunspot—*Gymnolomia multiflora*

Wall Flower — *Erysimum asperum*

Yellow Lady Slipper—*Cypripedium pubescens*

This author apologizes to all the other friendly mountain flowers—Blue Eyed Grass; Wand Lilies; Shooting Stars; Forget-me-nots, tall and short; Sedums, and such—and hopes they never, never, learn that space would not permit enumerating them.

ATTRACTIVE ASSOCIATIONS

By HELEN FOWLER

Flowering Almonds are lovely for facing lilacs. I have used the much-maligned majenta coloring with *Lythrum salicaria*, white *Boltonia* and pale yellow *Gladiolus*. It wasn't bad.

Plant white *Columbine* with *Hemerocallis flava* and see if the old Lemon Day-lily is common!

Add bloodroot (*Sanguinaria canadensis*) to your grape hyacinths.

Chose the creamy Crown Imperial Daffodils to plant with *mertensia*.

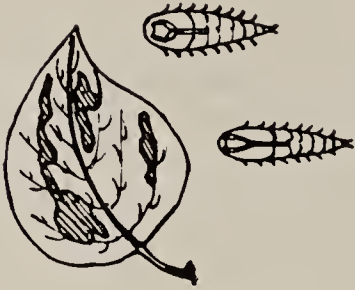
Valerian officinalis (garden heliotrope) behind blue Siberian Iris.

For mid-summer bloom plant Regal Lilies against a background of climbing roses.

White and blue *Linum perenne* with Oriental Poppies.

TEN COMMON INSECT PESTS

Information compiled by George W. Kelly, Drawings by Lorene Smith



Thrips

Thrips are tiny black insects which most seriously damage gladiolus, onions, privet and a few other plants. They are seldom seen as they move very fast and hide much of the time in the spaces between leaves. Evi-

dence of their damage is faded areas on leaves and faded or distorted blooms. They are difficult to control when they become numerous. Prevention is usually more effective. Gladiolus bulbs should be treated with DDT or naphthalene flakes when in storage, and they should be planted in ground where no glads or onions have previously been grown.

A spray of two teaspoons tartar emetic, four teaspoons brown sugar in one gallon of water has been effectively used. It should be applied in early morning, late afternoon or on cloudy days when the insects are out in the open feeding.



Lilac Leaf Miner

The larvae of these insects develop as a small white worm between the upper and the lower surface of the leaves. When numerous enough they may almost defoliate the plants. They may be controlled with applications of nicotine sulphate at double the usual strength when they first appear, or by one of the new insecticides such as DDT or Chlordane which have a residual effect.



Leafhoppers

Leafhoppers are most destructive to rose, grape or ivy plants but may attack many others. They cause a fading and lifeless appearance to leaves when they are numerous. The young are soft-bodied and may be controlled much like aphids, but the adult are winged insects and may be controlled with a coverage of some such stomach poison as arsenate of lead. Repeated applications of either insecticide is necessary to control those that hatch later.



Aphids

THE aphids or plant lice are soft-bodied insects which live by inserting their sharp beaks into a plant and sucking its sap. They multiply very rapidly when conditions are favorable. They may attack almost any growing plant at certain times. The activities of ants often indicate the presence of aphids, as ants enjoy the sweet "honey-dew" given off by aphids. As they do not chew and as they are soft-bodied, the control for them is a contact spray or dust. This may be nicotine sulphate (Blackleaf 40) Pyrethrum, Rotenone or some of the new, more powerful insecticides. Addition of soap will usually increase the effectiveness of sprays. It is important to repeat the treatment in a week or ten days to catch those which may have hatched from eggs after the first spray.



Grasshoppers

Grasshoppers may feed when hungry on almost any plant, but when there is plenty of food they may develop definite preferences; for instance, they may almost destroy iris without seriously damaging other plants. They are more abundant in some years than others and seem to prefer dry, hot weather. Insecticides containing chlordane have recently been found to be very effective in their control. The usual treatment has been a poisoned bait scattered at sunrise when the first small 'hoppers appear. A recommended bait consists of bran, $1\frac{1}{2}$ pounds; molasses $\frac{1}{4}$ pint; sodium fluosilicate or Paris green, one ounce; water, 1 pint. In most counties, grasshopper bait, ready-mixed is available through the County Agent's office.



Sowbugs or Pillbugs

These little gray bugs are common

in damp dark places, under boards, pots or refuse. They feed on roots or tender shoots of plants and may do considerable damage if allowed to become numerous. Removing their hiding places, keeping the surface of the ground drier and setting out poison bait are the usual controls. A common formula for Sowbug bait is 1 part Paris green, 9 parts sugar (or part flour or corn meal). This must be applied under boards or in places where animals and birds cannot reach it.



Leaf Slugs

These small shellless snails are most destructive to the leaves of Cherry, Pear, Plum, Hawthorn, Cotoneaster, Roses and similar plants. The adult lays tiny eggs on leaves, which develop rapidly and may do a great deal of damage. They eat the green from between the veins of leaves, sometimes almost defoliating the trees.

The control is easy but the treatment must be done promptly when the slugs first appear. As they are soft bodied they may be killed with a contact spray, as they also chew they may be controlled with application of a stomach poison and as they are slimy creatures they may be destroyed by throwing ashes or dust on them.



Cutworms

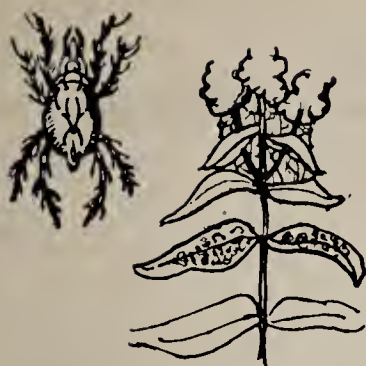
The damage from cutworms is largely to small plants, as the worms cut off their roots or seriously damage them. They work at night and are usually seen as tightly rolled worms in the soil during the daytime. One control is by putting paper collars around such susceptible plants as asters and cabbage, or by putting out poisoned bait. A commonly used bait is made by mixing 1 ounce of Paris green, zinc arsenite or sodium fluosilicate, 1¼ pounds of bran, 4 ounces molasses and ½ pint of water. Scatter at sundown. This is very poisonous and must be thoroughly scattered or covered with boards or screen to keep from animals and birds.



Snout Beetles or Rose Curculio

These are beetles with a snout much like an elephant's trunk with which

they bore holes in rose buds and do other damage. They are very destructive, but are hard to find as they work mostly early or late. No completely effective control has been developed but spraying periodically with the all purpose sprays or dusts may help to keep them under control. As they insert their snout into the plant to feed they are seldom affected by stomach poisons applied to the surface, and as they are not soft-bodied they are not affected by contact sprays. Hand picking in the early morning and a careful sanitation program have been found to be most effective.



Red Spiders or Spidermites

These pests are very small, so are seldom seen unless special effort is made to locate them. Tapping a suspected twig over a white piece of paper may disclose tiny red dots moving around which are the red spiders. Their time of greatest activity is during the hot days of late summer, but a few specimens may be found on infested plants almost any time of year. They multiply rapidly and live by sucking the sap from their host plant. They may attack a great variety of plants but are most conspicuous for

their damage to Colorado Juniper, Blue Spruce, Currants, Bush Cinquefoil, Perennial Phlox and other plants. Plants infested with them show a browning and dirty look on the under side of the leaves, or, in the case of evergreens, a gradual dying of needles from the inside of the plant toward the outside. Sulphur in some form has long been used in the control of red spiders and is still effective. It is most efficient when applied between 75 and 90 degrees temperature. Many new insecticides, or rather miticides have been recently introduced which are more effective but are dangerous to use. Some recommend a periodical spraying all summer with a mixture of sulphur, pyrethrum and nicotine sulphate to keep spiders and other evergreen pests under control. A hard force of cold water applied frequently will help to keep them under control, but cannot be expected to completely eliminate them.

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several times in spaces of several weeks. It will saturate wood and make burning very easy on day when there is no wind. Will burn down into roots and leave no ugly mound of stump. The depression left may then be filled with soil and planted with grass.—MRS. M. E. PLUMMER.



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RED SPIDERS AND APHIS ON CEDARS

ROBERT E. MORE

THE two pictures shown here tell their own story. On one tree foliage is thick and full; the tree is healthy and beautiful. The other is mangy and anemic looking. When these trees were planted, they were equally beautiful. Lack of care made the difference. Unfortunately, most Denver Cedars (properly, they should be called "Upright Junipers") are of the pest ridden type. From June first



on, aphis and red spiders are rampant. If ignored, one or the other will permanently ruin 80% of our Cedars.

Since each of these pests works with inconceivable speed, it is poor policy, indeed, to withhold prophylactic measures until one or both pests are definitely present. Red Spiders can make the whole inside of a Cedar drop to the ground in the space of a few days only. Aphis can destroy whole branches (particularly at the bottom of the tree) almost as quickly. In addition, the spider mites are so minute they can't be seen with the naked eye un-

less shaken on to a white sheet of paper. So act *before* they hit your tree.

A program that is followed successfully by several experienced nurserymen is to spray with lime-sulphur *before* growth starts in the spring, and then apply a sulphur-nicotine-pyrethrum dust monthly from June 1 to September 1. Lime-sulphur is known as a "dormant" spray. That means it is so strong it is likely to burn new foliage. So it is applied while the tree is dormant, before the new growth has started. (Late March or early April.) The dust just mentioned was used successfully for many years by "Big Bill" Lucking, now in charge of the City Nursery. The sulphur is bad for spider mites, the nicotine for aphids and the pyrethrum for both. Although no reports of foliage burn from this dust have been made, it is suggested that its use be restricted to days when the temperature is below 85° Fahrenheit. Since you will be using your dusting machine for many years, buy a good one. Be sure to hit

both the under and upper sides of the branches.

Washing out your Cedar with the hose will *not* control either pest. It will help, of course, but countless Denver trees have been ruined because the owners had been led to believe that regular washing with the hose would protect Cedars. It won't.

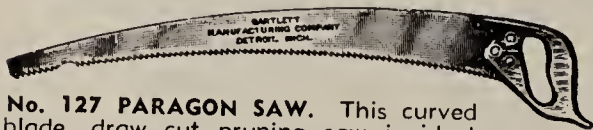
Recent tests at the Ohio Experiment Station (Wooster, Ohio) indicate that *Dowspray 17* is a most satisfactory treatment for spider mites on evergreens. (Journal of Economic Entomology 40: (3): 419.)

Although certain low growing Junipers, such as the Pfitzer, the Savin, and the Tamarix are not ordinarily susceptible to these two pests, be sure of your variety before omitting prophylaxis. Most of our "Cedars" are *Juniperus scopulorum* or *Juniperus virginiana*. There are low growing types of these species and trimmed specimens, as well. These are just as susceptible to aphids and spider mites as the erect growing types. It is safer, therefore, to dust *all* Junipers and Cedars.

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PLANTING COMPOSITION

EDMUND WALLACE, *Landscape Architect*

THE subject of planting composition is quite as indeterminate as the general subject of art. To arrange the masses and create the combinations that carry the qualities of form, color, texture and habit needed to transfer the plan into living scenery—that is the function of planting composition.

Probably the character of the ground, as much as any other one factor, should influence the character of the plant growth. The greater mass of the plant forms will repeat the character of the landscape. The rounded forms of the dogwood, bush honeysuckles and viburnums; and the horizontal effect of the cotoneaster, prairie rose and pfitzer juniper, together with a few upright groups to relieve the monotony of the skyline,

would best exemplify the horizontal lines, characteristic of the plains.

More variety is expected here in the Rocky Mountain region wherever rock outcrop and jagged skyline is visible. The accent type of growth becomes a much larger part of the planting mass. The irregularity of the sumacs and the vertical forms of the Bolleana poplar and silver cedar will be preferred to the dense rounded kind.

Full advantage should be taken of this view of the mountains and rugged country with which so many here in the mountain region are blessed. However small that glimpse may be, framed by foliage, it can be the feature of the garden. Regardless of the plan, the carrying out of the elevation,



whether it be an avenue of stately poplars or points of interest along a garden path, one's eye can be directed to our mountain vista from any point in the garden. The tracery of willows or a white birch group against the purpling hills or the color of a western sunset, the majestic spruce or the informal branching pine serve well as framing.

True, the open country of the west and the ruggedness of our mountains call for a planting outline in keeping with such grandeur—and yet, what a pleasing contrast is provided by a little formal garden on the axis of our view to the valley and the mountains beyond. A pool, placed at a lower level, reflects the loveliness. When such a garden is seen from a higher terrace, the plan design shows to advantage. Low hedges are effective in outlining such a design. Almost any flower bed or border in a garden design benefits by such a definite edging. Where a less formal hedge is used, it can be colorful as well as trim if care is exercised in trimming at the proper time. The flower buds of the spring-blooming plants are formed during the latter part of the growing season, or the food storage period. Such a hedge



This entrance arch and spruce were carefully located to frame the view to the mountains.

should be sheared after flowering until about the middle of July. Flowering shrubs, such as the Reeves and V.H. spireas, dogwoods, beautybush, Persian lilac and the hybrid mock-oranges, when not pruned after the middle of July, can be depended upon to set sufficient flower buds to present the effect of full bloom the following spring and yet preserve the partial neatness of hedging.

Shrubs that bloom on new wood as the rose-of-sharon, snowberry, and summer spireas should be trimmed to hedge form before growth starts in early spring or at any time after the summer flowering.

Whatever be the character of the ground and surrounding landscape that influences the bulk of the planting, such planting may, as it approaches the house, transfer of necessity into a style befitting the architecture. Here, a similarity in texture and massing, and even in form, is important. Shape of plants to be used may

Left—A pool placed at a lower level, reflects the garden's beauty.





Low hedges bring out the plan design when the garden is seen from a higher level.

be suggested by the massing of the entire building or by the shape of architectural features such as doors and windows.

Coarse-textured construction calls for the use of coarse-textured plants such as the wayfaring tree, late lilac, Manchu cherry and some of the sumacs; smooth surfaces take dense, fine-textured plants like the spireas, euonymous, snowberries and desmodium; and the general design of the architecture may suggest vertical forms or the rounded outline.

Thoughtful plant selection will afford these ties between buildings and planting—but so often the effect originally desired by the landscape architect will be lost through the lack of proper maintenance. Maintenance, however, can be kept to a minimum if plantings are kept simple, trim, and selections made for good branching and compact form.

We have mentioned the mountain vistas which should be a focal point in our Colorado gardens. Unfortunately these are not always present. Colorado's blue skies, however, serve well as a backdrop for iris, daylilies, delphinium and phlox planted on a slope or above a low wall. Here, where the garden lies above the viewpoint, variation in vertical composition is more important than intricacy of plan. The soft pink of the flowering crab and the redbud or the shell-like white petals of the plum against the deep blue of an early spring sky provide an attraction for any garden.

A garden as seen from the terrace or from within, is much more intriguing if not entirely within view. Even on a 60 x 125 foot lot, the planting masses may be so arranged as to provide secluded areas. A site, where the rear of the lot is at a higher level than that of the house, lends itself especially well to this type of treatment.

Such a garden is inviting, and encourages one to go out into it and explore every corner for a hidden pool, a colorful rose garden, or some rare plant.

Likewise, much more pleasure can be derived from outdoor living areas that are not in full view of the house.

Where gardens have become outdoor rooms, actual extensions of the

Planting masses arranged to provide secluded areas make a garden more intriguing.





Colorado's blue skies serve well as a backdrop for planting on a slope or above a low wall.

house itself, we must consider winter effect. The use of low hedges has been mentioned for edging flower beds that are part of a design. Lodense privet retains many of its leaves until the new ones begin to appear in the spring, thus carrying the design of the garden in winter. The colorful bark of the Colorado dogwood and the mountain ash or the fruit of the barberry, red-leaf rose, and the haw, add winter color. Evergreens, of course, lend a touch of green and their branches when covered with new fallen snow provide a pattern of beauty that cannot be overlooked.

In conclusion, it should be pointed out that the best designed plan does not guarantee a beautiful garden unless it was conceived with the eleva-

tion well in mind. The cozy nooks, the pleasing composition of plant masses, and the attractive color combinations are the studied result of the correct use of proper plant materials.

Again, let us bear in mind that after the general plan, the planting is the art part—the living part of landscape architecture.

Massing of plants to be used may be suggested by the massing of the entire building.





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GARDENING REMINDERS FOR JULY

FREQUENT inspections must now be made to detect the first signs of damage by insects. As most insects multiply very rapidly an ounce of prevention is worth many pounds of cure. Learn to know the different types of insects and the damage that each does, also the control.

Begin your hedge trimming program early. The beauty of a hedge depends very much on the frequency which it is trimmed. If you are starting a small hedge, cut it back quite severely at first and shear it every time there are two or three inches of new growth.

Watch for the first formation of the disfiguring galls on the tips of spruce limbs. Pick these off and burn them as soon as they are noticed. After they have turned brown is too late to do more than improve the looks of the trees.

Turkey and chicken manure is very rich and should be used very sparingly. If this is mixed with peat it makes a very good fertilizer, supplying both humus and necessary chemicals.

Some of your plants may now be showing signs of chlorosis. This is a deficiency disease which affects the green coloring matter in the leaves causing them to become pale or yellowish. Barberry, Ninebark, Flowering quince and Soft Maples are most subject to this disease. Excess alkali, gypsum, plaster or lime in the soil might cause this, or even overwatering can produce much the same effect. Treatment with manure, iron sulphate, aluminum sulphate or sulphur might correct the soil condition.

Proper watering at this time of year is most important. In general we usually water more often than necessary and not thoroughly enough. Learn that the soil for grass should be soaked to a depth of at least six inches, for perennials and annuals at least a foot, for most shrubs at least two feet and trees three or four feet. The only way that you can know when the soil is sufficiently wet is to dig in and see. Sandy soils would require more frequent waterings than heavy clay soils. Be careful about watering roses late in the evening. Water standing on rose leaves overnight might cause mildew.

We are learning to do more mulching. This may be peatmoss, vermiculite, leafmold or even sawdust. If sawdust is used some additional nitrogen must be given the soil to replace that taken up by the sawdust. A good mulch will help to keep in the moisture, keep the soil cool and supply some nourishment for the soil. Later, as it is cultivated in, it will improve the physical character of the soil.

Cut off faded blooms and keep the garden looking neat. Some emergency trimming may now be done to shrubs which have bloomed.

Tulips may now be entirely dormant and the bulbs may be moved to new locations.

Weeds should be kept down now so that they will not go to seed and produce more plants next year. Mulching or cultivating will keep the weeds down.

If you would have nice, dense hedges you must trim them frequently.

If some trees, shrubs or perennials are slowing up too much, try giving them a little help with an application of dry or liquid fertilizer. Most of these concentrated fertilizers should be applied sparingly but frequently.



August, 1949

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The Green Thumb

Outdoor Living in the Rocky Mountain Area



IN THIS ISSUE, ARTICLES ON:

PERENNIALS, LILIES, DELPHINIUM

COLORADO WILDFLOWERS

HACKBERRY TREES

AUGUST GARDENING

FLAGSTONE

ORCHIDS

ALL WRITTEN FOR COLORADO CLIMATE



Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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WHAT GARDENING MEANS TO ME

Gardening is to me an escape from artificiality into a sane world of order and balance. It gives me a feeling of security, and satisfies a primitive need for the assurance of unchanging fundamentals. In my garden I find never-shifting values. I find the eternal laws of the universe in tangible form.

Gardening makes me humble. For in my garden I work with a force far stronger than I. When I realize that flowers absorb color and perfume from within a dimension beyond my understanding, my belief in God is strengthened. Gardening satisfies my hunger for spiritual beauty and creation.

If ideals seem futile, if friends disappoint me, if my heart is sad, or my mind in turmoil, if my eyes are dull and my body sluggish, I can go into my garden and find faith, tranquility, comfort and physical exercise, all of which give me a feeling of well-being.

Contributed by
 WALTER SLAGLE.
 Author Unknown.

The Green Thumb

Vol. 6

AUGUST, 1949

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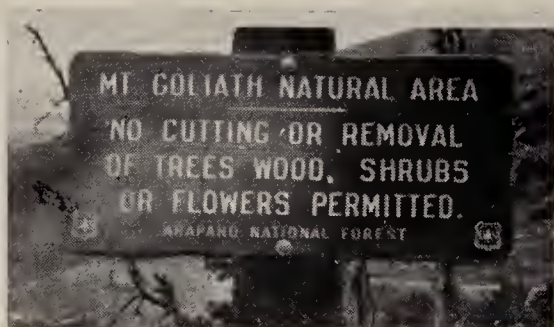
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WILDFLOWERS IN AUGUST

My Favorite Spot

GEORGE W. KELLY

FOR many years I have been making annual trips to Goliath Peak, above Echo Lake, to study the alpine and subalpine vegetation. Some years the display is at its best in July, but this year it will be in August. Snows have persisted unusually long in the high altitudes.

For residents of the Denver area, Goliath Peak offers the most accessible place to find the high altitude plants. The roads leading to it from either Idaho Springs or Bergen Park are very beautiful.

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liath Peak Nature Study Area. This action was taken to prevent its beauty and usefulness being spoiled by the carrying away of the picturesque timberline trees or by campfires. This makes an ideal location for the sub-alpine section of our series of botanical reserves.

Just above this reserve will be found all the typical alpine plants that grow on the windswept slopes of the high mountains—those very low moss-like things that carpet alpine peaks—Phlox, Pinks, Sandwort, Cinquefoil, Spring Beauty, Rock Jasmine and Clover. In and below the reserve can be found the subalpine flowers and trees, each in its preferred environment. Under the trees will be the

little yellow Draba, blue Mertensia, white Valerian and yellow Cinquefoil. Along the little streams which have their source here are the typical waterloving plants of the altitude—Marsh Marigolds, Globe Flowers, Little Red Elephants, King's Crown, and Parry's Primrose.

Within a few hundred feet here you may enjoy the sunny alpine slopes, the dense mountain forest and the timberline area with its grotesque reminders of the rugged weather that exists there.

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THE STATELY DELPHINIUM

By MAUD McCORMICK

AFTER 75 years of gardening, Liberty Hyde Bailey wrote that he had dug up his last delphinium to make room for new enthusiasms. My crystal ball does not tell me when, if ever, I shall cease having new enthusiasms, and I do not need it to tell me that I shall never lose my delight in delphiniums.

For Colorado gardens they are an ideal plant. They like our cool nights and sunny days, and show their appreciation by tall spires of magnificent bloom in white and purple and pastels as well as true blues that reflect the sky-tones captured by so many of our wildflowers of mountain meadows and slopes. What can be more fitting than that our gardens should reflect the exquisite hues? Delphiniums in groups of threes at the back of the broder furnish a generous supply of stately spikes during the season of roses and Regal lilies. Groups of fall-sown seedlings transplanted in early spring will take over hardly a month after the older plants have ceased blooming and will carry the display well on until the hard frosts of late autumn end the glory of the garden. Part of that time, the second bloom on the established plants will also help the display. Thus, with very little trouble, we can enjoy the spires and columns of gracious bloom except for a few weeks in midsummer.

Of the innumerable delphinium species, I am writing only of the one that has held the attention of the hybridizers for the past quarter-century or more. These are the giant hybrids developed by innumerable crosses with *D. elatum*, now most commonly referred to as the Pacific giants, since so much of the work



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with them has been done on the Pacific coast. These plants have double florets often three inches across, with so little of the old tendency to shatter that the lowest blossoms remain on the plant until the very topmost ones open. This is most particularly true of the glistening white Galahad, whose shining columnar spikes are in marked contrast to all the blues and purples and pastels around them. So far, the only pinks introduced have been of the spray type, single florets, and not of the clear coloring and tall spikes the delphinarians are striving for. One man has achieved a tall pink spire but will not introduce it

*White Delphinium in the garden of
Mr. and Mrs. John Evans.*



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until he has deepened the coloring. Another has begun to offer seeds of species types in orange, red, pink, and yellow, which may conceivably be of value to the men working for more color-variation in the fine hybrids. Since all the present tones of delphiniums blend harmoniously together, I am entirely willing to wait long for what might be an overpowering red, and I hope I shall never see an orange spike!

Some people overemphasize the difficulties of growing these most aristocratic members of the delphinium clan, but I am inclined to agree with the President of the American Delphinium Society, Carl Grant Wilson, when he says that anyone who can grow radishes and onions can grow these delphiniums from seed. He should know, since, as Tapco horticulturist for the Thompson Products Co. in Cleveland, Ohio, he has established more than five thousand plants in their display gardens, and seems to have little difficulty in keeping them all in health and showy splendor. Here, where we have less intense heat and few oppressive cloudy days, we should have far less difficulty in growing them to perfection. They will, in fact, thrive in any well-enriched soil where they have plenty of room for growth, considerable sunshine, and ample moisture, especially when the bloom spikes are developing.

Though I have written only of the Pacific hybrid delphiniums and at present grow no other varieties, I have at different times had *D. belladonna*, *D. bellamosum*, *D. chinense*, and many of the English hybrids in my garden. For airy sprays *D. belladonna* is fine so long as it can be kept free from mildew. *D. chinense* is a pleasing and generous little plant for the front of the border. Some of the other hybrids are chiefly single, and one whose coloring and size I liked



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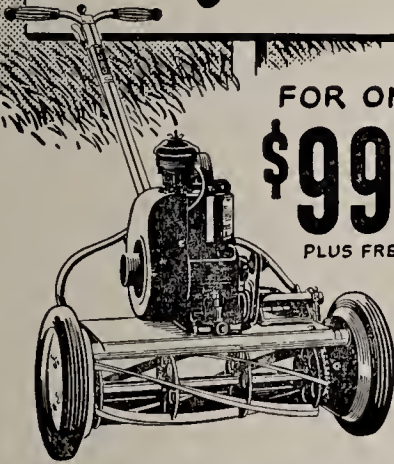
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very much had florets a bit untidy and loosely put together, like a beautiful girl with blowsy hair. It is because the hybrids from the Pacific Coast seem superior to all others that I find myself partial to their loveliness.

LILIES FOR THE PERENNIAL GARDEN

MRS. PERSIS OWEN

A generous planting of garden lilies is one of the easiest ways to keep a perennial border in constant bloom. They take up very little room and may be planted between clumps of perennials to good advantage, as they like their heads in the sun but their feet shaded. Their blooms are showy, fragrant, and last over a long period.

The following lilies need no special soil preparation or care in our climate, and will give bloom through June, July, August and September:

Madonna Lily—3-4 ft., small white trumpet, June blooming. Must be planted in August or early September so that it can make a tuft of leaves which carry over winter.

Regal Lily—3-4 ft., white trumpet, early July blooming.

This and all following may be planted in fall or spring.

Centifolium Lily—3-4ft., white trumpet, late July blooming.

Estate Lily—2-3 ft., white trumpet, July blooming.

Croft Lily—1-1 $\frac{1}{2}$ ft., white trumpet, June, July blooming.

Tiger Lily—3-4 ft., orange with brown spots, recurved petals, August blooming.

Henryri Lily—2 $\frac{1}{2}$ -3 $\frac{1}{2}$ ft., apricot dotted darker, recurved petals, August blooming.

Lilium Speciosum Rubrum—2-3 $\frac{1}{2}$ ft., pink dotted darker, recurved petals, late August to September blooming.

AUGUST GARDENING

The young of plant or animal require a little extra care. Watch those little plants that were set out a few days ago and give them a little extra water, or shade on a sunny day. Keep the competing weeds down and cultivate shallowly or mulch with peat or compost. Do not apply fertilizer until they are well established and started to grow.

If there are bare spots in the lawn they may be reseeded at any time. Scratch up a little loose soil, seed with the same kind of grass that is already there, cover with a little mulch and water like a new lawn for a few weeks.

Preparations containing Chlordane are very effective in controlling ants and grasshoppers. This chemical is not poisonous to warm-blooded animals (including man). Many other insects are also killed with this chemical.

Good gardens require good planning, good plants and good maintenance. If you have a garden which has not had consideration given to the first two things, at least you may keep it neat, and still have a very good looking place.

BOOKS ON COLORADO PLANTS

One of the objectives of the Colorado Forestry and Horticulture Association is to encourage more and better literature on the plants and horticultural conditions of the state. We now have on sale at Horticulture House several books which should be valuable to those who are interested in the native or cultivated plants of Colorado. "Meet The Natives" by M. Walter Pesman is a simple and convenient guide to the Wildflowers. "Colorado Evergreens" by Robert E. More describes and illustrates the native evergreens in their native habitat

and under cultivation. "Around The Seasons in Denver Parks and Gardens" by S. R. DeBoer is a book of observations over the years of one of our pioneer horticulturists. "The Flora of Boulder County, Colorado" by William A. Weber may be used as a valuable key to most of the wild plants of the state. "Nature Games" by Paul Nesbit tells of ways to interest children in the wonders of the out-of-doors. These writers have all put an immense amount of work on these books for your benefit. Come in to Horticulture House and examine them.

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Arrangement of gladiolus by Mrs. Earl Davis. Photo by Mr. Earl Davis.

THE ORCHID—JEWEL OF FLOWERS

MISS RUBY C. SMITH

ORCHIDS are distributed over practically the entire earth's surface, and have sustained the interest of cultivators since the sixteenth century.

In the early days, the idea prevailed that these interesting plants could never become popular with the general public for the reason that their culture involves a great deal of initial and permanent expense. Amateurs are now beginning to realize that orchids are capable of being understood by anyone who really desires to understand them, and that perhaps no other class of plants has given flowers that exhibit such diversity of form, size and color.

The two classes of orchids most generally known are the Terrestrial, such as the interesting little *Calypso borealis* of our own Colorado Rockies, and the natives of the tropics, Epiphytes, often erroneously referred to as para-

sites. It is true these orchids use trees as their habitat, clinging tenaciously to the bark, but derive their nourishment from the air, supplemented by decaying organic material present in the crevices.

A commercial collection of unusual interest and romantic growth is that of Kundsens, Inc. Florists of Boulder, Colorado. Begun as a hobby in 1912 with but a few plants, it now embraces more than five thousand plants of various genera. This hobby was a "natural" for the late Mr. Soren Knudsen who already had a well established retail and wholesale florists business. From collectors in Colombia and Venezuela, he imported cattleyas and odontoglossum. In these groups there came unusual types, some of which were traded to leading orchid hybridists in the United States. There is no doubt but that some of these plants were used in primary crosses in the development of some of our outstanding modern day hybrids. In exchange for these, Mr. Knudsen chose promising crosses in community pots, the object being continuous bloom over seasons not covered by the species. With the possession of these tiny babies, began the several years of watchful care necessary to bring the seedlings to plants of flowering age when their true value could be determined.

To the steadily growing collection were added exquisite hybrids imported from time to time from Sanders and Son, England, but perhaps the most significant source was that of Stuart Low and Company, Orchid Nurseries, Sussex, England. Miss W. Eileen Low, a close friend of Mr. Knudsen, came annually to the United States and Boulder bringing first hand in-

Oncidium Orchid.

Photo by Mrs. James Waring.



formation on newer and finer crosses. The purchase of many choice hybrids resulted which today, when in season, delight hundreds of visitors to the Orchid section of Knudsen's Inc. Also many are finding their way to the wardian cases of amateurs where they are grown successfully, bringing great personal pleasure to owners and their friends.

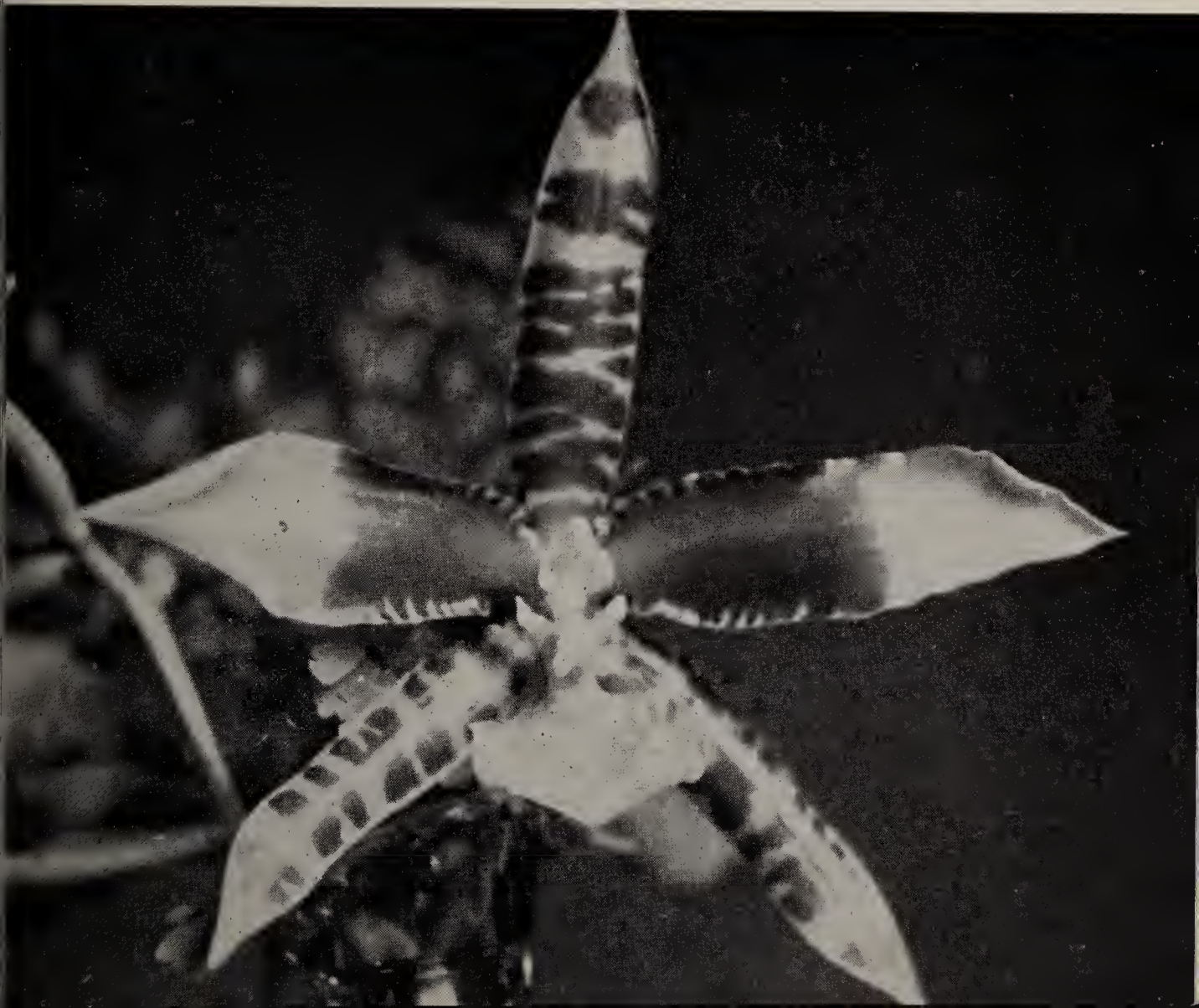
Never being content with limited genera, Mr. Knudsen added other interesting types such as Cymbidium, Cyripedium, Odontioda, Selenipedium, Oncidium, Epidendron, Miltonias, Dendrobium, Lycastas and Coelogyne. In this wide selection, orchid enthusi-

asts find an amazing range of color, fragrance and size, the smallest measuring approximately one-half inch and the largest showing a wing spread of ten inches.

Mr. Knudsen himself enjoyed hybridizing, and among his own creations is a very good white cattleya. Having met with accidental death, he unfortunately did not live to see this cross bloom.

However, his work is being carried on by his son, Mr. Louis P. Knudsen, who, when recently visiting with a friend remarked, "My father left in his orchids a living trust." He had done just that.

Odontoglossum Orchid. Photo by Mrs. James Waring.



THE AUGUST GAP

By JULIA JANE SILVERSTEIN

Landscape Architect

WE HEAR much of the "July Slump" and the "August Gap" when gardeners speak of the lack of bloom in the flower border. Since you have suffered through the "July Slump" let us look forward to the other sad state of affairs, if it can be called that. I am in hopes that by the time you have waded through the following, you will be able to feel that August is a mighty fine month in the garden after all.

The reason we are so especially disappointed with the color in the July and August garden is that we have been so surfeited with the glorious display that June has presented to us that we expect this magnificent show to continue. To me it is most gratifying to have some quieting down of gay colors into cool greens, especially as the days become warmer.

Contrast of foliage textures can be as stimulating and pleasing as flashy

colors. Notice a group of Columbine leaves in front of Iris spikes, in back of which is the soft gray foliage of the Sulphur Meadow Rue (*Thalictrum glaucum*); in the more shaded areas the large heavy leaves of Plantain Lilies (*Funkia*) among Fern fronds with an occasional Day Lily (*Hemerocallis*) arching in the back-ground. The tower-like foliage of Regal, umbellatum or Tiger Lilies makes lovely accents strutting out of Phlox, Columbine or shiny Peony clumps. Along the front of the border for edging, the gray tuftiness of *Dianthus* (Clove Pinks) with the gray rounds of *Sedum seiboldi* is a good combination. Or contrast the gray grass of *Festuca glaucum* with the circular Coral Bell foliage (*Heuchera sanguinea*), also *Sedum spectabile* in front of German Iris—all give interest, and not a blossom in the bunch.

But don't be discouraged, there is

Clove Pinks and Coral Bells.





Patio garden of the author.

a great deal of color to be had, Phlox in great variety gives some of it to us, with Globe Thistle (*Echinops ritro*) and early Monkshood (*Aconitum sparksii*). Since Phlox is the iron clad perennial for this season, care should be taken in selecting varieties so as to avoid an over-abundance of mediocre ones, instead of the three or four that exactly fit. Try to restrict yourself to varieties that belong to a single color range rather than a mixture of all colors, and use a touch of white sparingly. One can choose the pale pinks through the true pinks to richer salmon and a few of the polka dot varieties, the white with pink or red eyes. Or you may want lavender shades with a few magenta

tones and even an occasional deep red. A cool effect for the hot August days can be obtained with mostly white Phlox with a few soft lavenders like "Silverton" and the metallic flowers of Globe Thistle and Sea Holly (*Eryngium amethystinum*).

The annuals, of course, lend the most vivid colors to the garden at this season—they should be selected carefully so that they will fill in and blend with the perennials. Zinnias, Snapdragons, Dwarf and even Giant Dahlias, Chinese Asters, Cleome, Nicotiana, Petunias, Lobelia, Torenia, and Sweet Alyssum can be combined with some perennials if carefully thought out. I always like to tuck in a few Nicotiana (Tobacco Plant)

Clove Pinks, Funkia and Iris.



for the wonderful fragrance it brings to the garden in late afternoon and night. It comes in shades of deepest red through to white.

The Early Chrysanthemums such as Aladdin and the profuse blooming Azaleamums with the dwarf Asters give bloom for the edge of the border. Some of the late blooming Day Lilies especially the pale yellow ones are stunning with light pink Phlox and Salmon Phlox with a mass of Giant Lemon Marigolds.

One of the characteristics of the August border which is apt to make us think it less attractive than other seasons is its untidiness caused by the June flowering plants gone by and a few straggly blossoms left on the July ones. We need to prune back some of the too rank top growth of these early plants to keep order in the border. Avoid cutting the plants back too severely, since some foliage is needed to give energy for next year's bloom.

Sedum, Columbine and tall Iris.

So many people think they must have a mass of bloom all summer long, but there isn't space enough in the average garden to provide such a color display even if it were desirable. For one cannot fill the same space with all spring plants and cover that space with the June, July, August, and September plantings. The only way to have such a display would be to have separate borders for each season, if your grounds could provide such a setting. This would be impractical in most average gardens. Another question asked so often of a plant—"Does it bloom all summer?" The answer to this is usually "No"—and I would like to add, "How dull if it did." How would you like to have the Peonies and Iris till September or Tulips till August? I'm sure we would be sick of them, and lose the thrill of Spring. It is fun to look forward to the buds of each new season, and to even let the roses have a rest, it gives us a glad expectancy to have them come again later in the season.

Gardening is a stimulating hobby and it is a good thing for us that each plant knows better than we do when its time for blooming comes along. What a mess we'd make of it if we had everything blooming at once. I for one am glad not to have to see the same old blossoms on the same old plants all year long.

Again let me emphasize that foliage background for any flower is essential to and should be retained as a foil and adjunct to all color pictures. In our border I retain an Iris, of the ochroleuca variety, which has never blossomed. It has stately lance-like foliage about three feet high which is essential as an accent in my picture. The Meadow Rues are another favorite of mine along with the shiny leathery foliage of the tall late Monkshood



with some Siberian Iris as a background for blooms.

Let us not overlook the grasses which can be very stimulating at this season. The waterfall effect of the 6'-8' *Eulalia japonica zebrina* cascading from a background planting, and the more compact Fountain Grass (*Pennisetum japonica*) growing 24" to 30" high can be used effectively.

Fruits of many of the shrubs are now getting color; Honeysuckles, Viburnums, Cotoneasters, Crabapples all can be used in the background of flower borders.

We still have a few more plants for color in August other than Phlox: Heleniums, Buddleias (Butterfly Bush), Boltonia (tall white Daisy), Chrysanthemum uliginosum (tall Daisy), some of the early Asters (Michaelmas Daisy), and Artemesia lactiflora (Southernwood)—with fluffy sweet scented flowers growing about 5' tall.

So, you see, there is really no dearth of bloom if combinations and timing all work out. Weather, soil, exposure, humidity—all make some differences in blooming dates causing a variation

from season to season and year to year. We can't very well force nature to our will; we can only hope that our planning will sometimes work according to schedule.

Don't forget that any border or seasonal picture that does not rely on more foliage than bloom is bound to be garish. A picture which is a blur of color can never be truly effective.

AUGUST TRIPS

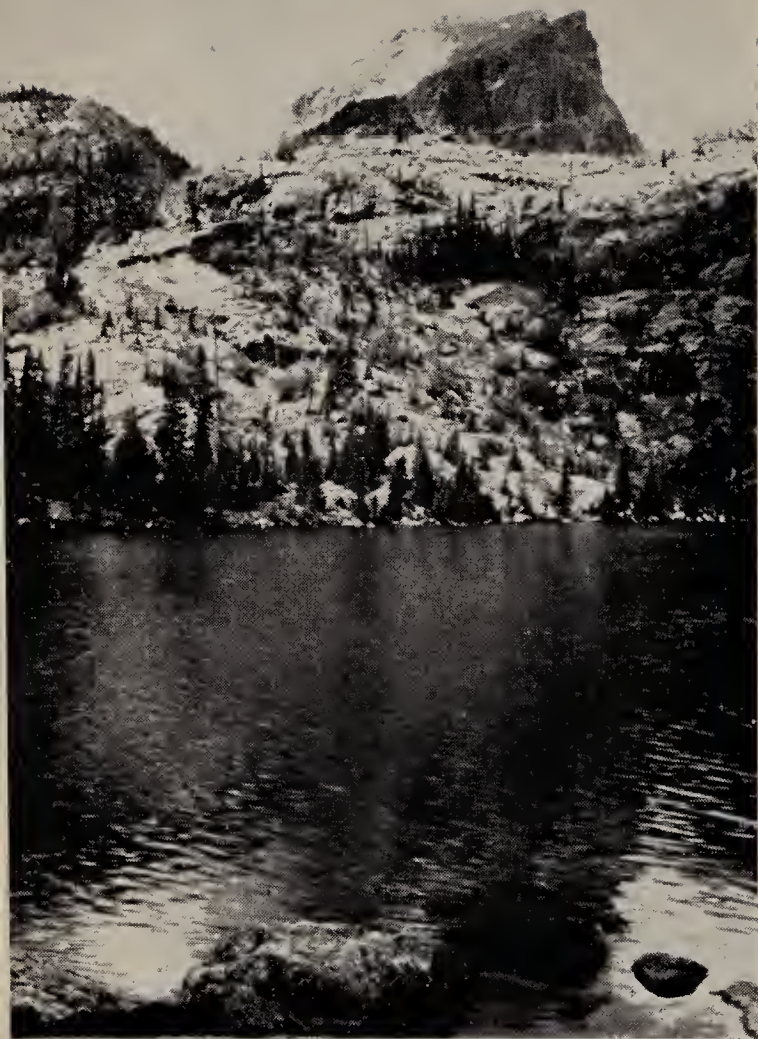
The Trips Committee has planned and conducted many fine expeditions into the mountains in the past year. Much has been learned of the Wild Flowers and other beauties of the Rocky Mountain region.

As yet there are no definite trips planned for August. The Committee would appreciate suggestions as to what kind of a trip and which leaders you would like to have arranged.

Call Mrs. Anna Timm, PEarl 5565 or George Kelly, TABor 3410. Some suggestions at present are trips to Brainard Lake, Jones Pass, and James Peak. The 3-day Labor Day holiday offers a fine opportunity for a trip.

Iris, Ferns and Lilies.





WHAT DOES

GEOR

over Colorado. We have such a great variety of altitudes, slopes and character of soils that we might have not just one thing to display, but dozens of things.

With careful planning the yellow roses in Central City, the Bleeding Hearts in Georgetown, the lilacs in Idaho Springs, the roses in Gateway, the zinnias in Rocky Ford, the daisies in Glenwood Springs, and the

Mountain towns may be very attractive
Photo of Buena Vista

IN spite of the great amount of ranching, mining and industries in Colorado, the nature of its terrain will always make it of first importance as a recreation state. We need to consider this more seriously and plan our development of the state to make it more attractive to our visitors as well as our residents.

We have great need right now to preserve unspoiled many of the wild and interesting spots in the state, we need to beautify many barren roadsides with suitable plantings, we should provide better picnic and camp spots, but the big thing that is needed right now is to beautify our little towns and cities with appropriate plantings.

We rave about the azalea, cherry or dogwood displays in the south or east, but do not consider that we might have even greater displays all



COLORADO NEED?

W. KELLY

Flowering Crabs in Denver could be world famous. There is not a community in the state where some plant or group of plants will not thrive and make a fine showing. Even at high altitudes it has been proven that lilacs and peonies will grow, and at still higher altitudes the native evergreens can be planted to make an unforgettable display.

I am recommending that public and

they make use of the plants available.
lo., by Chas. J. Ott.



private groups who are interested in boosting the state might well spend their money to the greatest advantage by employing a competent landscape architect whose responsibility would be to advise with all communities of the state as to the best things that they might plant in their towns. Even Denver, with all her fine parks and estates, does not make a very good impression on visitors by the approaches to the city. Important intersections, like Dillon, should be beauty spots, instead of barren and desolate looking places. Even they might grow sweet peas and spruce trees to be known around the world, if they would make the effort.

As you drive over the state this year, look at the roadsides, little towns, and approaches to the cities as a visitor would look at them, and see how much they might be improved. Then talk to the necessary people and let's get this landscape architect on the job.

NETTLED BY THE NETTLETREE?

M. WALTER PESMAN

MOST of us know this nettletree by the name of *Hackberry*, and the most common kind found in these parts is botanically known as *Celtis occidentalis*, or *Common Hackberry*.

We should appreciate it because it is one of the very few trees that are actually native to our region. Aside from the evergreens we have hardly any tree growing wild except cottonwoods, boxelders and willows—really large trees that is.

There was a lone hackberry growing on "Hackberry Hill" north of Arvada; it was a landmark visible from a long distance. Old-timers told the tale of its having been planted on the grave of an Indian Chief. It was old, quite old—and venerable.

Some of us tried our best to save it, when Wadsworth Avenue was cut through the hill, irrespective of a

heavy grade, irrespective of the old landmark. A straight line seems logical on paper, and is the obsession of some surveyors and engineers. A deviation of a few feet would have saved the tree, a deviation of twenty-five feet would have saved much excavation and snow hazard. But the straight line won out, and the tree that was said to have drawn Professor Torrey's attention in 1843, was cut down. Two remnants commemorate its fame: the gavel of the Colorado Forestry and Horticulture Association, (donated by Mr. C. R. Root), and a poem by Mrs. Ora Kehn, dedicated to the fallen victim.

Hackberries can be found growing wild in Deer Creek and other foothills valleys west of Denver, Boulder, and Fort Collins. They are mostly small trees; many are of great age.

But what I really wanted to talk about are the fine, large cultivated trees that are found in many parks, along boulevards, and on private home grounds—in Denver and other parts of Colorado.

Outstanding are the four beautiful specimens at the "auto-turn-off" on the north road in Cheesman Park, and those in the east portion of Jefferson Park. The younger trees along Marion Street Parkway in Denver are beginning to be much admired. (Incidentally their seeds, dispersed by birds, are giving rise to a number of hackberries, scattered throughout the neighborhood.)

What is bothering a number of us tree lovers is that, here and there, we find a different type. On the Capitol grounds and in Highland Park, for instance, we find hackberries that fail to show the close-knitted bark, whose leaves are without a saw-toothed edge, and whose berries are an orange-brown

Celtis occidentalis in Jefferson Park.



rather than dark purple, when ripe. We need to look twice before we are reconciled to their being hackberries.

Well, here we have to do with the so-called *Sugar Hackberry* (*Celtis laevigata*, formerly called *Celtis mississippiensis*). It is less dense, its branches are apt to droop more, and its light bark is either smooth or interestingly spotted with warty excrescences. I know of no other tree with a similar bark. And it seems to be quite hardy.

For the sake of completeness we should mention three other species, among which *Celtis reticulata*, or *Net-leaf Hackberry*, is known in the Southwest as *Palo Blanco*; it has rough, leathery, smooth-edged leaves, and rarely grows into a tree. *Celtis douglasi*, or *Celtis Rugulosa*, is closely related but has saw-toothed rough leaves, and longer fruitstalks (occasionally found in Colorado). *Bigleaf Hackberry*, *Celtis crassifolia*, is considered a variety of the Common Hackberry, again with very rough leaves; Rydberg reports it all the way from Massachusetts and South Carolina to North Dakota and Colorado.

The name "hackberry"? According to Webster's dictionary it has nothing to do with cutting or hacking, but is derived from the word "hagberry", which is a birdcherry in Scotland, and a hackberry in other places. He claims that hag and haw have the same root, and that a hag was originally a wild woman of the woods (hedges). Now let your imagination wander.

"Unknown Tree" is the name given to some scattered hackberries near Schuylerville, N. Y. and near Palatine Bridge. Sugarberry is a logical name, considering its sweet taste.

At one time both elm and hackberry were lumped with the common stinging nettle in the Nettle Family (Urticaceae). While many of the leaves in this family are rough and



Common Hackberry (Celtis occidentalis) has coarsely-sawtoothed leaves, rough bark, and dark purple berries.



Sugar Hackberry (Celtis laevigata) has smooth-edged leaves, light gray, smooth or slightly warty bark, and smaller orange brown berries. Is much less common in this region.

harsh to the touch, I am not familiar with any "nettle-rash" as a result. Until the name nettletree has been explained more satisfactorily, I think that many of us will still be nettled by it.

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PEST-FREE PERENNIALS

MAUD McCORMICK

IF you were banished to a desert island, what plants would you take with you? Since you'd be far from plant-doctors and dust-guns, you'd be wise to choose the sturdiest kinds that held beauty and charm for you. If your island had a Colorado climate and virgin mountain soil, what joy you could have in selecting your favorites among the myriad blues that fare so well in high woodlands and meadows under our blue, blue skies! Columbines and forgetmenots, pentstemon and lupines, and all the delphiniums and bluebells of campanulas and mertensia. All these and many more would flourish in your island garden.

Even where the soil is more arid and alkaline, the rainbow-hued iris and pyrethrum repel virus and rots and baleful bugs. The balloon-flower, too, is another iron-clad plant to add blues and whites to the border. More of the toughest perennials, though, seem to be of the orange-tawny hues most easily recaptured by color film. Gaillardias, torch-lilies, coreopsis, and all the new and lovely hemerocallis are on the bugs' black-list here, and

none of them want coddling. All will take full sun or thrive equally well in dappled shade for a part of the day.

Sometimes I toy with the idea of having only iris and hemerocallis in my pest-free island garden. The day-lilies now have a color range from near-white through all the yellow and orange tones to russet-red. The iris, of course, have all those and blues and pastels as well. Together, the two have a blooming season stretching over a large part of the blossoming year. But I should have to include delphiniums, and grow more of them from seed if they succumbed to disease. Their tall spikes combine so well with the paler daylilies that they are almost a necessity in the garden picture. And I could never omit the chrysanthemums, whose fall hues intensify those of the autumn leaves and endure the rigors of frost and snow so well.

With clumps of torch-lilies in front of shrubbery and misty baby's breath near-by, coreopsis and clove-pinks and gaillardias and violets and columbine, I could have variety in my borders.





CHICKEN SURPRISE

(Serves 15)

Mrs. Timm is responsible for several of the fine dinners recently arranged for visiting Horticulturists at Horticulture House. She also supervises the cooking on our botanical expeditions. Several have requested this recipe for one of her favorite dishes.

2 boiling hens—large.

Salt, bay leaf, onion, few pepper corns.

Boil all together until tender.

Cool chicken in the broth.

Skim fat, and save to use in cooking rice and making white sauce.

Bone chicken and cut into one-inch cubes.

Run skin thru grinder and add to chicken.

Boil one cup rice (Uncle Ben's Improved preferred) in chicken broth.

Add $\frac{1}{2}$ teaspoon salt and two tablespoons fat to the boiling broth (4 cups cooked).

Saute 2 cups shredded almonds in teaspoon butter.

Saute one 7-oz. can mushrooms, drained, in teaspoon butter.

$\frac{1}{2}$ cup buttered bread crumbs.

2 tablespoons chopped green parsley.

WHITE SAUCE

1 large onion, thin sliced, browned in 2 tablespoons butter and 1 tablespoon chicken fat.

Remove onion and add 2 tablespoons flour.

3 cups broth, 1 cup sweet milk, pepper and salt.

Sauce must be very thin. Add broth to thin if too thick.

Chop 1 tablespoon each of green pepper, red pimento, canned tender celery stalks and leaves, green onions and a pinch of celery salt to white sauce. Cool white sauce before adding these chopped ingredients.

Use large casserole or bake pan.

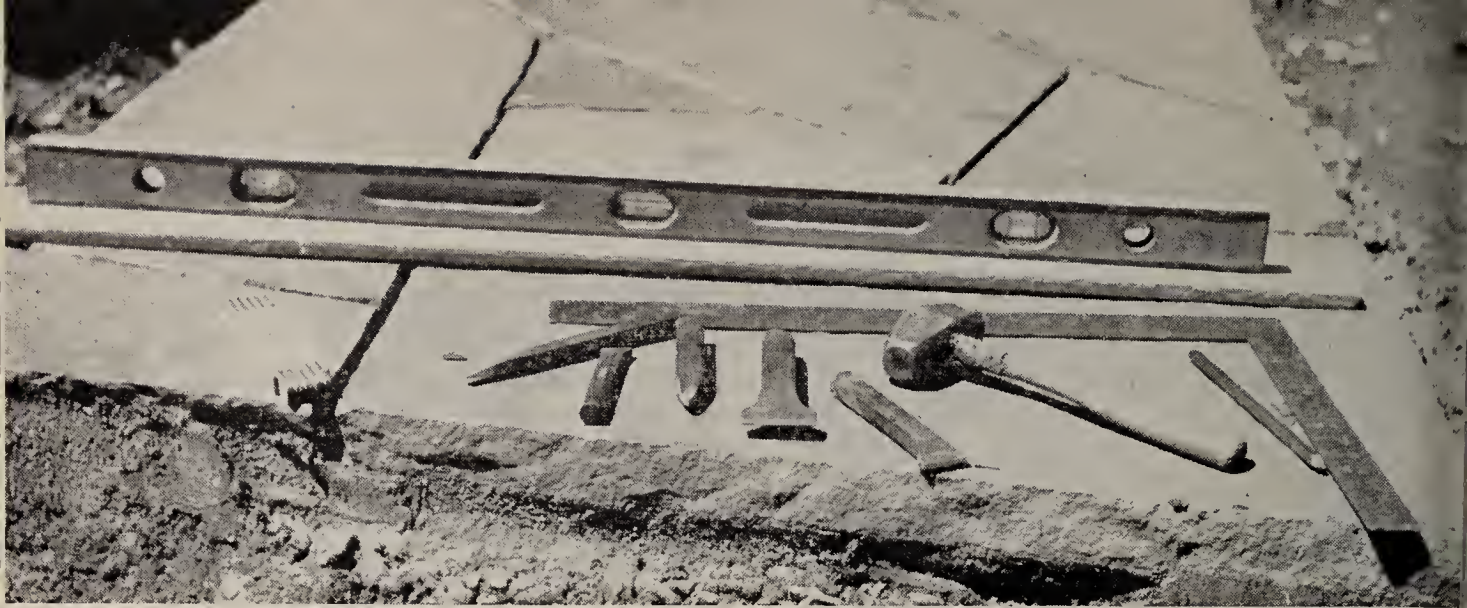
Alternate layer of rice, chicken, mushrooms and nuts, and repeat until casserole is full; then sprinkle bread crumbs and parsley on top.

Bake 45 minutes. Start at 375° until brown and then lower to about 325° .

ANNA TIMM.

Check your Honeylocust and Birch for any signs of dead limbs or leaking places on the trunk which might indicate the presence of the destructive borers. We must all be alert for evidence of the work of these beetles if we would save these fine trees.

The common weedy Bluebell is difficult to eliminate. One application of 2,4-D does not seem to disturb it, but three or four applications a week or so apart should help. Digging up the soil where it is established and sifting out ALL the roots is the only really sure way to get rid of it that has been discovered at present.



DO YOUR OWN FLAGSTONE WORK

GEORGE W. KELLY

TELLING one how to cut and lay flagstone would be very much like trying to teach skating by correspondence, but there are some pointers that could be given for those who think that they would like to do their own work.

The first requirement might be to have a strong back and/or a weak mind. Certainly one of the first things to learn is how to handle heavy stone with the least strain on your back.

Frank Schultz cutting flagstone. After reading this article you will probably decide to get an expert like this to do your flagstone work.



Usually the heavy pieces can be partly lifted with levers and then blocked in the middle so that they may be "rolled" or "walked" without actually being lifted. Care should always be taken to avoid dropping, as this might start small fractures which would prevent their being "cut" later in the places wanted.

The first consideration in preparing a stone to be cut is to have it solidly seated on the ground or cutting table. There should be no vibration, and it is better to have the bed where it lays slightly higher at the sides than in the middle, so that it will rest solidly. A level spot covered with sand makes a good place to cut stone.

After laying out the lines to be cut with pencil or sharp rock, the first cut is usually made near the middle or the shortest distance across the stone, as stone always tends to break across the narrowest way. A good sharp stone chisel is important. The stone is marked across with the chisel, gradually using heavier and heavier strokes of the hammer. If the stone is over an inch or so thick it is safer to turn it over and mark it on the reverse side. The trick to be learned in cutting stone is to govern the weight of the stroke to the thickness of stone, type of stone and progress of the cut. This comes, after a time, almost by instinct.

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RICHARDS

At the End of West Mountain Avenue — FORT COLLINS, COLORADO



Flagstone fireplace and platform built by O. E. Haffner, an amateur flagstone cutter.

The most difficult cut is that in which a long stone is to be cut into narrow sections. In stone of some textures this is almost impossible. The white flagstone is more tractable than the red. Red varies in workability. A soft "punky" stone and a hard brittle stone can be told by the ring when it is hit with a hammer.

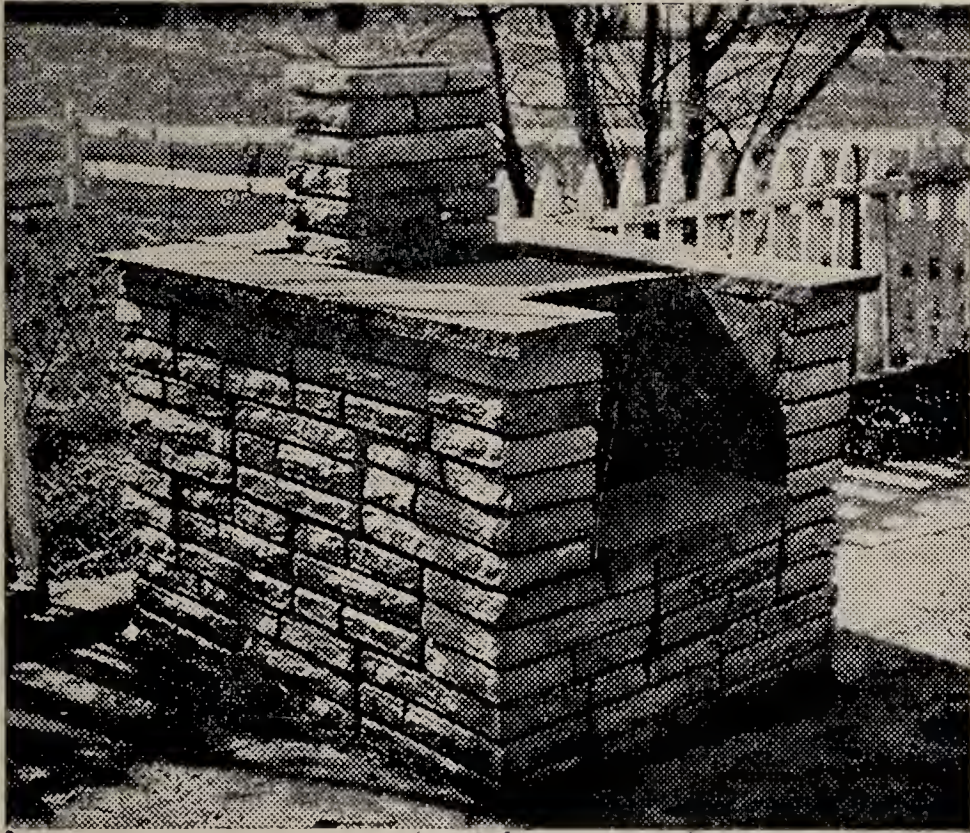
In laying platforms or walks, rather thin stones can be used if they are

set in several inches of concrete. Where they are laid in soil they should be at least two inches thick and of sufficient size that their weight will prevent their being tipped up when someone steps on their edge. When laid in concrete the total thickness should be around four inches.

One of the interesting things about laying flagstone is that it is a combination of art and science. There is a thrill to piecing together irregular flagstone into a satisfying pattern equal to that of a jig saw puzzle.

Walls may be laid with concrete or "dry". If dry they should have a "Batter back" or lean in at least at the rate of one in five. They should also have sufficiently large rocks so that they will hold the soil behind them and not be knocked out of place every time someone sits on them. Laying a dry wall with pockets left for appropriate rock plants is a very interesting job. In this informal handling of flagstone very little cutting or dressing is done, as a natural looking





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break is more in keeping with the character. Formally dressed and shaped rocks can be used in walls attached to houses or in other places where the general idea is formal.

Steps designed to fit the particular place may be made things of beauty if carefully worked out and constructed. Fireplaces, pedestals, porches and gateways may also be constructed with this material so that they tie up with other features in the garden and about the house.

Varying effects can be secured by using different colored mortar to secure these rocks, by making tight or wide joints or making flush or "raked" joints.

Much of the beauty of flagstone work, where mortar is used, is in carefully and quickly washing all edges where the cement stain may be made from the mortar running out.

A nice effect can be secured by using the naturally weathered flagstone for informal pool and rockery work in connection with formally cut stone.

Tools necessary for ordinary flagstone work would include several chisels of varying width from one inch to three inches, a medium weight, short-handled hammer, mason's level, trowel, tapeline and straight edge. Stone may

be secured from local dealers, the quarry at Lyons, or sometimes old sidewalk can conveniently be used.

Flagstone is a very adaptable material especially appropriate for garden use in Colorado.

Mrs. Helen Fowler, proprietor of Shadow Valley Gardens and donor of the original library at Horticulture House, has announced that she is preparing a complete manual of annual flowers which will be available at Horticulture House soon for anyone desiring a copy.

We are interested in finding several issues of Volume 1, Number 3 of The Green Thumb (May, 1944). These are needed to complete volumes to be used for binding. We will pay 50c for this issue. Call TAbor 3410, if you have one to sell.

Beginning at once, all books taken from the library at Horticulture House, which are not returned within two weeks will be subject to a fine of 2c per day.

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RESEEDING COLORADO WILDFLOWERS

L. J. HOLLAND

COLORADO has long been noted for the beauty and variety of the wildflowers found throughout the entire mountain region; and the plains region certainly is not lacking in its seasonal display. Indeed, only a few states have a greater number of species represented. This is due to the fact that there is over 10,000 feet difference in the altitude of the highest and lowest points in the state; geologically, this reaches from the Upper Sonoran zone to the Arctic zone. Thus, we find here plants that are indigenous to northern Mexico as well as those that are encountered on the frozen tundras of northern Alaska and Canada.

Therefore, the fact that the number of plants that grace our by-ways has steadily diminished in the last decade should be of prime interest to flower-lovers everywhere.

This condition has been brought on by several factors, some of the more apparent are: the drought of the 'thirties, the expansion of agriculture during the war years, overgrazing in certain areas and, to a greater extent than most persons realize, the indiscriminate gathering of flowers by tourists and natives alike.

However, the existing condition is one that is not too difficult to rectify, and the cost to any individual is negligible; the little effort required is far offset by the knowledge of having done a bit toward the preservation of our wildflowers. The solution, as I see it, is in each of us planting a few seeds at every opportunity. This can be done whenever on a hunting or fishing trip, a picnic, or just a drive through the country. Remember, the plains and the foothills should be as much a field for this endeavor as the mountains. In fact, farmers and ranch-

ers can aid in preventing erosion, as well as making their holdings more beautiful, by a judicious planting of native shrubs and flowering plants. That native plants do better here, ordinarily, than exotics, is well kept in mind.

Perhaps there is a question of what, when and where to plant, and also of how to obtain the seed. Of course a great deal of seed may be gathered from the wild, and that not so obtainable may be had from Rex D. Pearce of Moorestown, N. J. It is well to note that the percentage of germination is much higher with seeds that are planted correctly than with those sown by natural methods. Practically all of the perennial wildflowers do best if the seeds are planted as soon as ripe, but may be sown in the early spring while the soil is still cool. The annual varieties are usually best planted in the spring. All seeds should be covered very lightly, not over one-fourth inch.

Those having a mountain cabin will greatly enhance the beauty of the location by planting all suitable kinds in liberal quantities, probably this would be the only place that those rare beauties, Wood-lily, *Mari-rosa* (*Calochortus*), and Fairy-slipper (*Cypripedium*) should be planted. Under no circumstances must these be taken from their natural habitat, but I will be glad to name a source of supply, if anyone interested will contact me.

For those sunny slopes or open glades any of the following will naturalize nicely: Beard-tongue (*Pentstemon*, spp.), Chiming Bells (*Mertensia ciliata*), Flax (*Linum rigidum*, yellow and *L. lewisii*, blue), Evening Primrose (*Oenothera missouriensis*), Golden Banner (*Thermopsis mon-*

tana), and Prairie Coneflower (*Lepachys columnaris*). If a rocky spot is available Bitter-root (*Lewisia rediviva*) and the various Cacti will feel quite at home.

Where there is light shade and a little more moisture than is usually encountered on the plains, White Globeflower (*Trollius albiflora*), Columbines, Delphinium, Troutlily (*Erythronium*), Bellflower (*Campanula*), White Geranium (*G. richardsoni*) are very desirable and comparatively easy to grow. One should be extremely careful to plant Delphinium where there is absolutely no chance of livestock getting to it, as it is virulently poisonous and causes a very appreciable loss to stockmen.

I believe that reseeded the depleted areas would be a commendable project for Garden Clubs and hiking or mountain clubs. Such organizations could make a co-operative project out

THE AMERICAN DELPHINIUM SOCIETY

By MAUDE F. McCORMICK
Rocky Mt. Vice-President

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of such a venture. At least it is a suggestion that merits serious consideration.

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THE MODERN ARBORETUM

(Extract from a talk by Frans Verdoorn as recorded in
"The Journal of Forestry")

THE modern Botanical Garden or Arboretum, in any region, should not be merely a collection of living plants but a center, coordinating the interests of all those in the region, concerned with plants. Directors of large botanical institutions dwell increasingly on the interrelationships between plant life and the life of man. A broader concept of horticulture is making its way all over the world. I believe that many of the efforts to establish new arboreta and botanical gardens are symptoms of a general feeling that there should and could be a stronger link between those who grow plants, who play with plants, and who study plants as well as those who are responsible for the conservation and development of natural resources as far as they concern plant life. This feeling, this worldwide new concept, ill-defined though it still is in its immediate objects, may well become something of great national and international value, both

in plant science and practice, as well as in human relationships generally.

To fulfill its task the modern arboretum will first have to consider the various groups of the population which it will have to serve. I distinguish ten groups of citizens with which an arboretum may be concerned: (1) school children (and their teachers); (2) the general public (whether it has only a few potted plants or a sizable garden); (3) the horticultural amateurs (considered as individuals); (4) the owners of large, diversified gardens; (5) commercial and semi-commercial growers; (6) the gardeners employed by commercial growers and on estates; (7) amateur botanists and other amateur naturalists; (8) professional botanists, horticulturists and many other biologists; (9) the horticultural and other biological societies in the area served by the arboretum; (10) last, the city, county and federal governments and several of their special agencies.

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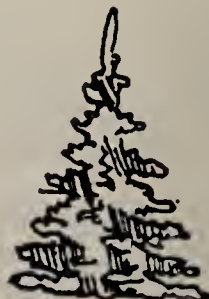
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AUGUST GARDENING

The most important gardening chore in August is watering. If you have started weeks ago to train your garden for this hot weather, by watering more thoroughly and less often, your plants will have developed a deep root system which will enable them to survive the weather with little damage.

Weeding, first of all, is to prevent competition to the young plants and let them get a good start. Now we are inclined to let a few weeds grow, thinking that it is unimportant. The great damage that weeds can do now is to propagate themselves and scatter seeds to bother you again next spring. One late dandelion going to seed can undo all your careful work of weeding earlier.

Every year gardeners are learning more of the value in mulching. This eliminates much weeding and cultivating. It keeps the surface of the soil more uniform in temperature and moisture content. Peat, compost, manure, straw or vermiculite all may be used, even sawdust is effective if used in the right way.

Does your garden look empty now? Check for this August gap. Make notes now of the empty places in your borders and note valuable plants that you see in your neighbors' garden. Put this all on paper or you will have forgotten by next spring, when planting time comes.

Do not let down in your war on garden insects and diseases. The large red aphids are likely to be on your goldenglow and goldenrod. Perennial Phlox may be losing their lower leaves. Dust with sulphur to control both rust and red spiders. Aphids may be sucking the life out of your delphinium, columbine or spirea bushes.

Any necessary trimming to trees or shrubs may be done now as well as any time.

Your tulips are completely dormant now. Some of the old top may still be present to show where they were. If they bloomed well this spring they should be left alone. If they were weak and appeared to have divided into many small bulbs, it is time to dig and divide them. They do not need to be kept out of the ground until fall, but may be replanted at once. Put them in about 10 inches deep in a partly shaded place, for best results.

Hollyhocks are one of our most showy flowers. The reason more people do not like them is because of their ragged appearance after they bloom. The solution is simple—just cut them down when they are about through blooming.

Now is the time to move Oriental Poppies, if that should be desirable. They are dormant now, but will begin new growth in September. Even a small piece of root will often start a new plant. Plant them in large masses where they may be seen at a distance.

The weeds along the roads and on vacant lots were very beautiful this spring because of the unusual rains. When the hot dry weather comes and they are through blooming they are anything but beautiful. Then they should be moved down and raked up for neatness' sake.

With the big rush of planting, cultivating, spraying letting up a little, now is the time to begin some of those needed construction jobs. Painting the fence, laying a new walk, building a lily pool or moving the clothes lines are good projects for August.

It's fun to save some of your own seeds. Watch when they get ripe and put away a few for next year. If many varieties of one plant are present the seed may be considerably mixed, but that is alright for one year.

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The Green Thumb

Vol. 6

SEPTEMBER, 1949

No. 9

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WATCH THIS SPACE

in future issues

With this issue of the Green Thumb the members of the Colorado Nurserymen's Association start a series of little stories about better plants and better plant service for Colorado. There will be no sales talk or propaganda in these articles. They will be just friendly talks, with timely suggestions, designed to show all homeowners how they can get the most satisfaction from their gardens, and how the nurserymen of the state can be of greater service.

We all believe that ornamental horticulture is very important to Colorado, and that it can and should be developed much beyond its present status. Look for this full page story in each issue of the Green Thumb.

BELOW IS A LISTING OF THE MEMBERS OF THE COLORADO NURSERYMEN'S ASSOCIATION

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Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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SEPTEMBER SCHEDULE

- Sept. 3, 4, 5—Saturday, Sunday and Monday. Back Pack Trip over Pawnee Pass and into the wild Arapahoe Peaks beyond. Call TA 3410 for further details.
- Sept. 9—Friday, 10:00 a.m. Horticulture House. Corsage Styling Demonstration by Jack Clow of The Blossom Shop.
- Sept. 14—Wednesday, 7:45 p.m. Horticulture House. Beginning session of Commercial Course in Horticulture for Nurserymen, Arborists, Park and Golf Course men. Anyone interested in a serious study of Horticulture is welcome.
- Sept. 18—Sunday Trip to Kenosha Pass or other appropriate spot to see the Aspen in fall color. Leave Horticulture House, 8:30 a.m.
- Sept. 23—Friday, 7:45 p.m. Horticulture House. Panel of Garden Experts. Bring all your garden problems.

Since the August issue of the Green Thumb went to print we have found out the name of the author of the inspiring little statement, "What Gardening Means to Me." This little story was sent to Walter Slagle by a friend who had clipped it from the November, 1947, Flower Grower. It was quoted from Jessie Morris in an article written by Frank S. Coffin. Read it in the August issue.

LANDSCAPE CLASSES

We have arranged for a series of three short courses in the fundamentals of Landscape Gardening to be held Wednesday evenings at Horticulture House. The first session will be September 14 at 7:45 P.M. These classes will be arranged especially for the commercial men—nurserymen, tree trimmers, landscape gardeners, and park men—but any one interested in the serious study of landscape gardening is invited.

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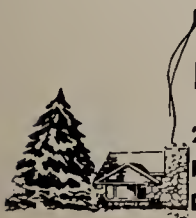
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CHRYSANTHEMUMS IN COLORADO

GEORGE K. KROH

AUTUMN proclaims the chrysanthemum as its floral counterpart. Nature even discreetly omits blue coloring which is a shadow tone of coming winter snow, but lavishly tints mums with every other warm hue that has any fall significance, real or imaginary. In this slightly wistful season we can hardly be thrilled less by the crescendo of color harmony spread by Jack Frost's daubing hand together with the last splurge of a multitude of frost resistant chrysanthemums, than to be thrilled looking out over the Grand Canyon.

Colorado's Indian summers are of the best, and that is ideal weather for outdoor mums. In fact, some of the quite early varieties will have bolstered the faltering assortment of other late summer flowers in late August and September. The pay-off comes after the first frost, usually occurring the third week of September over much of the eastern slope of Colorado. Then remains an interval of about a month when Chrysanthemums are in their full glory.

Hardy mums have so recently been revised for *earlier fall blooming sea-*

son that not a few gardeners are gingerly growing plants which they feel will safely bloom out in the heat of the summer, instead of taking that grand reckless plunge by really enjoying an abundance of varieties that bloom after the first frost. It takes cooler weather and shorter days to bring out the richer color tones en-masse. Neither is it longer necessary to stand by doubtfully to see if the late old varieties of grandmother's garden are going to make it again this time.

True, frost may discolor some open blossoms, particularly whites and some yellows, but by the next day or two, new uninjured blossoms are open and again going strong. Up past mid-October we do get severe enough freezes to wind up the season.

Until about 1930, there was a dearth of outdoor chrysanthemums that were either hardy or early enough for the Plains, the Midwest, or New England. In the "thirties" the late Alex Cummings of Bristol, Conn., had realized his desire to breed greater hardiness and unusual new color lines into the heretofore hortorum Chrysanthemum with *C. coreanum*. Elmer D. Smith of Adrian, Mich., was also contributing valuable basic material. As the momentum of new varieties increased, such notable contributors as Dr. Mulford of the U. S. Dept. of Agriculture, Dr. Krause of the University of Chicago, and Prof. L. E. Longley of the University of Minnesota became prominent. Simultaneously the famous early blooming Amelia variety and her colored sports and near kin were brought from obscurity and highly advertised as "Azaleamums," "Cushion-Mums," "Million-Mums," and other hyphenated similes.



Carefully appraising this passing parade of so-called new hardy early blooming mums for outdoors in its test fields, was the Cheyenne Horticultural Field Station at Cheyenne, Wyo., under the direction of Dr. A. C. Hildreth. This station was one of the chief testing grounds for a number of Dr. Mulford's selections, and subsequently the Cheyenne station introduced a number of the valuable hardy U. S. D. A. varieties, all christened with Indian names. The impact of the variety endorsements given by the Cheyenne station, altitude about 6,100 feet, at the outset of the new wave of mum popularity was profound and convincing. Therefore, gardeners in the Rocky Mountain and Plains region were for once on a par or perhaps a little ahead of their brethren in other parts of the United States in the discovery of this new class of garden flowers.

Chrysanthemum Types

For garden purposes we shall not at this time include the large greenhouse types. Otherwise, Alex Cum-

Large Double Type.



Korean Type.

mings enumerates the following classifications:

Large Double—Fully double flowers 3 inches or more across, similar in form to the China Aster.

Single—One or more rows of petals, with a central disk or eye showing prominently.

Duplex—Informal flowers that have more than two rows of petals, but still show a definite center.

Pompon—As a whole of rounded shape, and usually perfect in form, further distinguished by sub-headings (1) Button Pompon, flowers not exceeding 1½-inch diameter; (2) Intermediate Pompon, flowers 1½ to 3-inch diameter; (3) Large Pompon, flowers 3 to 4½-inch diameter (unusual except in disbudded pompons).

Cushion—Dwarf and semi-dwarf, dense, mound shaped growth; fits perfectly for displaying mass effect in the landscape.

Anemone—One or more flat rays of perfect petals with a pronounced cushion or disk in center of flower; existing varieties at present too late for general acceptance.



Pompon Type.

Cascade—Growth more pliable than usual, giving special effect; at present in novelty class.

Spoon—Interesting blooms characterized by long tubular petals, termi-

Spoon Type.



nating in flat, spoon-like tip.

This would be an appropriate place to mention the chrysanthemum species involved in present-day varieties in a brief outline; from these come the factors of form, hardiness, color, earliness, etc.

C. hortorum — Not a species or type, but mentioned to avoid possible confusion and refers to varieties derived from interbreeding the Asiatic species *indicum* and *morifolium* until the present century.

C. coreanum (Korean Daisy)—Native of Korea and north to Siberia, single, color white to pink. Dominant parent of single and double Korean Hybrids.

C. arcticum—From arctic Europe, Asia, and America. Low mound-like growth hardly exceeding 15 inches. Flowers single, color white to pink. Used in parentage of hybrids by De-Petris, and by the Styers who introduced the Northland Daisy hybrid chrysanthemums.

C. coccineum — From Persia and Caucasia. The familiar *Pyrethrum hybridum* holds some promise in blending new color shades and insect resistance.

C. nipponicum—From Japan; foliage of fine heavy texture with 3-inch single pure white flowers.

Culture

Soil—Garden chrysanthemums will grow in a range of acid to alkaline soils, and from sandy to clay textures. Since they are heavy feeders, the soil must be such as that capable of growing good vegetables. It is beneficial to work the soil to a 12 to 15-inch depth for planting, spading in a generous application of manure and 3 to 4 pounds of 20% superphosphate per 100 sq. ft. An application of 4-12-4 commercial fertilizer may be applied according to directions about the time the plants are budded.

'MUMS, WE HAVE 'UM

Hardy English varieties,
some of the newer Cushions
and lots of the old
stand-bys.

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SOMETIME**

NORTHERN NURSERY

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*If It's Grown in Colorado
It Will Grow in Colorado*

Location—Any location good for hybrid tea roses is good for mums; two-thirds sunlight, avoid a wind-swept location, and plant in a place fairly well drained.

Planting—The best quality commercial plants are not older than 1 year field grown stock, or potted rooted cuttings; root division of older plants can be satisfactory if the hard center core is omitted. A good time for planting is during May. However, plants will bloom if planted as late as June if absolutely necessary to wait that long. Dividing and transplanting clumps after the second year is suggested for thriftier plants and better bloom; discard the old woody center of the root clump. Spring is the best time to plant new stock. Do not overcrowd; spacing of 18 inches is a fair average; for a solid hedge, 1 foot apart is close enough.



Watering—Water just often enough to maintain normal growth; soak the soil, then let it coast a week or so, with a cultivation thrown in for good measure. Moisture requirement increases as the plants become larger and come into bloom. For best health of plants, use deep surface irrigation rather than sprinkling.

Pruning—Pinch back the soft tips about two inches when new growth is 6 to 9 inches tall to induce bushier growth; pinching back can be repeated once or twice more if desired when the succeeding lateral shoots are 6 to 8 inches long to induce even greater compactness. Discontinue pruning after mid-July lest bud setting be delayed.

Spraying—Well grown plants are not disease or pest ridden as a rule. The same kind of disease and insect control as applied to the average garden plants will see the mums through. The average general rose spray like Tri-ogen once in a while will do these plants no harm. Nematodes cannot be controlled by spraying since they are inside the leaf tissue; they navigate by means of water on the leaves; again, irrigate the soil and not the foliage. Where brown patches on leaves extend to the tip without crossing veins remove this foliage and burn, then burn the stalks later in the fall.

Winter Care—Low wet ground usually causes trouble. With fair drainage the casual gardener, if his plants are thrifty, gets by with hardly any winter loss most of the time except for a few less hardy varieties which he insists on growing because he is especially fond of a certain variety or two even if it is a little tender. The systematic gardener will cut back the tops in the fall, and when the ground begins to freeze, will apply an areated mulch such as ever-

green boughs to prevent freezing and thawing. A heavy leaf mulch may become soggy and smother out the plants.

Decorative Uses

As cut flowers, chrysanthemums have few equals, lasting from one to three weeks depending on texture of variety, room conditions, and frequency of water changes; soft stems will preserve the flowers longer than will hard woody stems. Chrysanthemums will not open out of bud satisfactorily and therefore should be cut when pretty well opened. Fully developed plants in bud or bloom can be nicely moved in the fall with a clump of soil and finish blooming out very well if well watered, thus permitting brightening up of dull spots in the garden out of a utility row or two grown alongside the vegetables during the summer. Landscape combinations are endless, ranging from very small groups to great masses of color.

Varieties

An enumeration of varieties is here purposely avoided. Space does not permit, and furthermore when varieties and choices are as plentiful as they are, these cannot be dictated without controversy. Nursery lists are now sufficiently stabilized that even a beginner is pretty safe with a catalog from most concerns. Watch for blooming dates given; for our section, late August, September, and the fore part of October is our best range of blooming season. Introductions by the U. S. D. A. are especially safe.



Use the Green Thumb ads for reference in selecting quality merchandise and service. Tell the merchant "I saw your ad in the Green Thumb."

HARDY CHRYSANTHEMUM VARIETIES FOR COLORADO

Notes from a talk given by Jack N.

Withers at Horticulture House,

November 26, 1948

Chrysanthemums are easy to grow, easy to propagate, and may be transplanted at any time, even when in bloom. They like lots of water and fertilizer. They may be shaped by pinching or disbudding when small. If large blooms are wanted they may have all the side buds pinched off, and if dense low plants are wanted,

they should have the top pinched out two or three times.

They should be torn apart in spring, the new side shoots set out and the old middle portion thrown away. Chrysanthemums are easily started from divisions or cuttings.

The following list of good 'mums is recommended:

Name	Color	Height In Inches	Bloom Size In Inches	Date of Bloom	Listed In Order of Preference
Pygmy Rose	Rose	15	1½	August	8
Early Harvest	Mahogany Orange....	14	2	August	29
Nanook	White	18	1¾	August	31
Tribute	Pink	19	3	August	28
Zantha	Yellow	26	2¼	August	18
Eugene Wander	Yellow	25	3	August	16
Dee Dee Ahrens	White	30	2	August	32
Summer Time	Yellow Daisy	24	2	August	38
Dahlia mums	Wine Red	30	2	Early September	25
Bronze Precoc	Bronze	26	3½	Early September	26
Yellow Avalanche	Yellow	28	3	Early September	3
White Avalanche	White	22	3	Early September	1
Maroon N. Gold	Mahogany	15	2¾	Early September	23
Violet	Purple	24	2½	Early September	35
Glacier	White	22	3	Early September	2
Butter Ball	Yellow	24	2	Early September	21
Sienna	Sienna Brown	20	2	Early September	17
Little Eskimo	White	15	1½	Early September	30
Valiant	Br. Rose-Scarlet.....	33	4	Middle September	6
Wychwood	Yellow	28	2½	Middle September	4
Autumn Song	Wine-Rose	29	2½	Middle September	9
September Dawn	Br. Rose-Pink	28	2½	Middle September	10
Mumurs	Pink-Purple	24	2¼	Middle September	13
Aurora	Red to Orange.....	23	2	Middle September	15
Lavender Lassie	Lavender	15	1¾	Middle September	7
Simba	Orange Bronze	29	2	Middle September	19
Harbinger	Bronze	30	2½	Middle September	33
Courageous	Crimson Red	38	2½	Late Septembr	5
Carnival	Burnt Orange	30	2½	Late September	12
Meditation	Lgt. Jasper-Red	30	2	Late September	14
Fred Rockwell	Bronze & Orange....	38	2	Late September	11
Chippewa	Purple	31	2½	Late September	24
Charles Nye	Yellow	32	2¾	Late September
Tiger	Br. Crimson	19	2½	Late September	27
Redwood	Br. Red	24	2	Late September	36
Red Gold	Red & Gold.....	31	Late September	37
Korean Princess	Anemone Bronze Red	23	2½	Early October	20
Inspiration	Orange-Red	39	2½	Early October	22
Indian Summer	42	2½	Blooms after frost	34

A MODERN APPROACH TO LANDSCAPE ARCHITECTURE

By EDMUND WALLACE, *Landscape Architect*

IN the May 1949 issue of "The Green Thumb", 'Design for Living-Outdoors', we attributed the modern trend in architecture and the allied arts largely to the development of new requirements, new materials and new methods. Some of the new needs affecting the house and its landscape discussed in this article were, the development of outdoor living; the solar house with orientation of its principle rooms towards the south; and the resulting picture windows that create the need for better back-

yards with year-round appeal, and screening for privacy necessary with the use of so much glass. We suggested that new materials might be a contributing factor in this change also. While new materials suggest new design in the allied arts, gardens continue to be built of old materials, foliage, flowers, lawns, water, wood and masonry. New plants have been introduced but, aside from their different flowers and longer names, are no different from the old. A change in design then, must come through

This Dane garden by Sidney N. Shurcliff, designed with an eye toward low maintenance, has a center panel of purple crushed stone rimmed by a curving bluestone walk.



new uses and new arrangements of the foliage, flowers and the construction. This new usage will not be guided so much by necessity as by the desire to be in harmony with modern architecture. The difference between the old and the new may not be so pronounced in landscape architecture as in architecture, but a modern approach can exist based upon needs and uses, color and texture, line, form and scale, rather than axes, symmetry and decoration.

Sidney N. Shurcliff of Boston, Mass. has recently completed a "garden in the contemporary manner". No grass or earth-grown flowers are present in this garden, yet the result is said to be as decorative and as restful to the eye as if grass and flowers were present. Its dog-proof center panel is asphalt buried under purple crushed stone. The center panel is rimmed on two sides by a curving bluestone walk and on all sides by a curbing of granite paving blocks paralleled by evergreen hedges and backed up by broad-leaved evergreens, hemlocks and azaleas. Most of these plant materials are not found in our Colorado landscapes.

Part of the success of a modern plan seems to be the especially developed jargon used to describe it. In describing Mr. Shurcliff's plan, it is said that, "using the ratchet principle, it mobilizes kinetic qualities resulting in clockwise rotation and a final satisfactory closure." Furthermore, "Rhythm is created in the plan and unification of the design is achieved through the use of optical common denominators", and "a pleasant space experience is consummated with each repetition of the visual cycle."

The "rhythm" is attained by the repetition of jogs spaced around the curbing, each jog being accentuated by a similar jog in the hedge behind the curb and the placing of a six-foot

yew specimen back of the jog. This is basic design. The "ratchet" must refer to the jogs which tend to direct one's eye in a clockwise direction. Foliage, bluestone, granite curbing, and sapling fence are used throughout the design as "common denominators."

Despite the jargon, Mr. Shurcliff has succeeded in creating a novel and pleasing design based upon needs and uses, color and texture, line form and scale, rather than axes, symmetry, and decoration.

Present emphasis is upon structure and simplicity. Modern design stresses plain surfaces and a swing toward the unsymmetrical rather than the symmetrical. There is a tendency to believe that "functionalism" carried to the extreme by meeting the bare needs will automatically produce beau-

The eye is directed in a clockwise direction around the Dane Garden by the rhythmic repetition of jogs spaced around the curbing and in the hedge behind.





The straight lines, paved walks, and modern design of architectural details give a modern look to the home of Robert S. Kohn at 1 Eudora Street.

tiful results. The ideal in landscape design should be to meet these needs and any other practical requirements with distinction. A well-kept lawn is a necessary asset to any garden, but the sunken grass panel formed by a definite slope of a foot or more adds a note of design to the lawn without affecting the spaciousness or the usefulness. In another instance, walks should be placed where they will serve—but serve the eye as well as the feet. Walks can be reasonably direct and at the same time be a part of good design.

The illusion of modernism in the out-of-doors may be expressed in part in the design and material of the architectural features and the prominence resulting from their position in the garden. Just as concrete is being

In this garden of the Haven Interiors, 255 Washington St., the planting follows the curve in the exterior design of the house and the well designed wall serves the dual purpose of screening an undesirable view and of providing privacy.



used more and more in architecture, it might be used for walks, steps, pools, and benches in a variety of surface textures and in different colors. The use of color is mentioned with some hesitancy as it is all too easy to get shades in concrete that will not blend harmoniously with the surrounding garden. The use of redwood slabs and colored gravel for paved areas is a new use of old material. These paved areas so prevalent in the "modern" plan call for less maintenance than grass areas. For the same reason, walls are used instead of hedges; continuous paved strips as edgings for flower beds and lawns instead of tricky stepping stones which have to be barbered each time the lawn is mowed.

Here in Colorado there are many fall and winter days when a protected sunny nook is a welcome invitation to a relaxing afternoon. Walls of various sorts are an effective means of providing such sun traps; they serve the dual purpose of screening off undesirable views and of providing privacy. Here again, is an opportunity for use of new materials or a new use of the old. With modern materials there is no limit to the forms they may assume. Typical is the use of corrugated asbestos board, bolted together in zig-zags and buried endwise in the ground. The material is permanent and needs no frame. Colorado offers many hillside building sites with a mountain view. Except where it is necessary, for the efficiency of the plan, the natural grade should be maintained with as little modification as possible. Curving walls will accent natural contours while serving as a retainer. These retainers can serve the dual function of supporting planting beds at a convenient working height. The use of native sandstone or other local stone provides a fitting wall harmonious with the surrounding landscape. Cresote-impregnated redwood is good for twenty years and

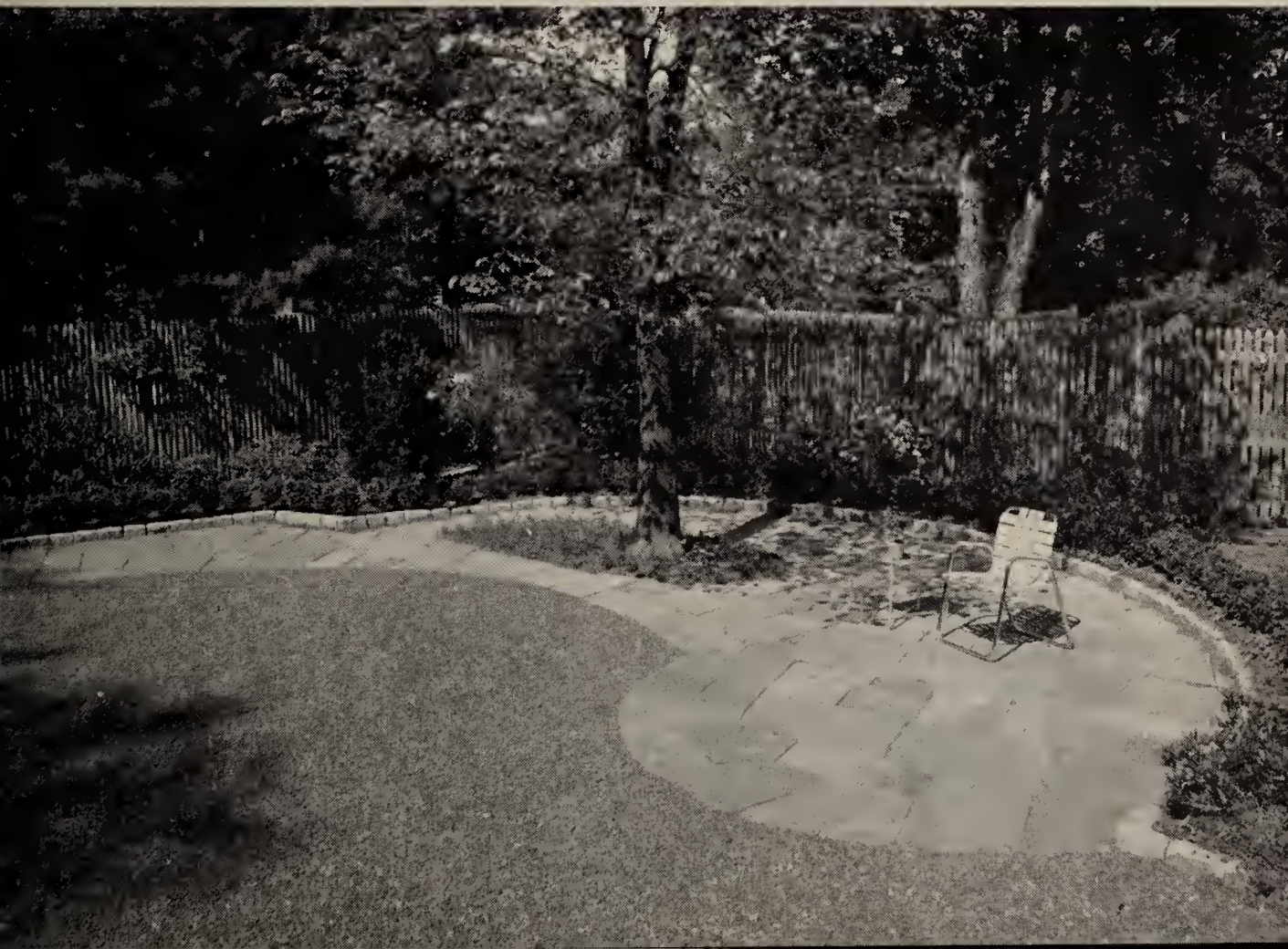
goes along with our western ranch-type houses. A low stucco wall in easy curves can effectively separate the garden area from a heavy planting screen behind which lies a working area, a street, or unsightly view.

Stone steps, dry laid and interplanted with alpine provides another attractive means for joining two different levels.

New technique in growing and maintenance may tend to make gardening easier and this combined with greater leisure, may affect the home landscape. The development of new methods, however, is hardly such that they will influence landscape design. The electric hedge trimmer may further popularize the sheared form and increase the use of variously trimmed hedges as a new expression of modern art out-of-doors. These hedges and

clipped forms, neat terraces, paved walks, and a greater use of masonry are being applied to modern landscape design. Severity and rigidity from the application of these items can be relieved by studied casualness, by the variation of color in foliage and flower, by an untrimmed plant mass at the corners and by free-growing shrubs in the rear of the hedge. A trimmed hedge in front of a boundary line of informal shrubbery is effective and, even more modern in spirit is the double hedge sheared to different heights. Further, the hedging need not be straight necessarily. It can be curved and irregularly curved too; it can be jogged a few feet; and it can be broken by hedge niches which may be formed in square, semi-circle or angle to hold a bench, a statue, a vertical evergreen, or a tree trunk. A

The importance of the elm tree as a terminal feature in the Dane garden is accentuated by the termination of the flagstone paving in a curving free shape around its base.



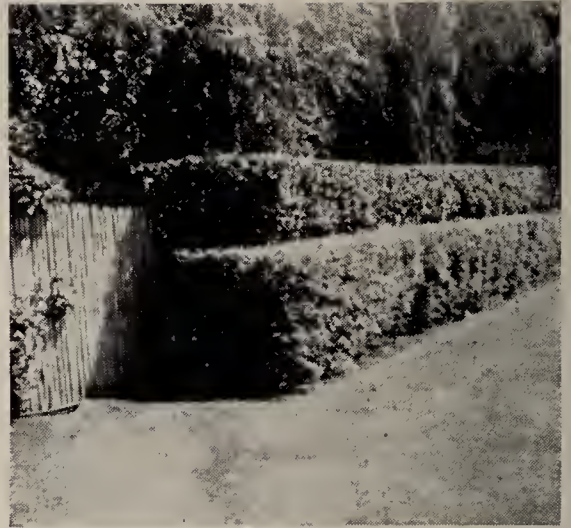
limited number of specimen plants trimmed into rigid shapes will fit in very well with modern design.

A row of small trees as some of the haws or flowering crabs can become hedgelike; two rows can be trimmed into an arbor-like walk; and individual trees can be boxed into accents.

Following the suggestions of the plot may provide shapes equally pleasant but different from the usual squares or rectangles, shapes that express the existing conditions and that relate intimately to the house. Regular shapes directly on axis and evenly balanced are not essential to the balanced design. The curves that appear in the exterior design of the modern house may be repeated in the garden area adjacent.

The use of straight lines and regular curves, trim lawns and crisp slopes, hedges, neat evergreens, rows of trees, paved walks and a modern design of the architectural details seems to be the order of the day. There must be originality in plan and

Home of Robert S. Kohn, 1 Eudora St.



A trimmed hedge in front of a boundary line of informal shrubbery is effective, and even more modern in spirit is the double hedge sheared to different heights.

in elevation as well as a change in details. However, ideas for the modern plan must originate from sources that are fundamental rather than from reasons of fancy and fads. "Modernism" must not be confused with "modernistic". Zig-zag lines, peculiar shapes, excessive use of concrete and the many other attempts at modernism have no place in today's landscape.

Modern landscape in planning and planting must still retain the controls of good sense and good taste if it is to develop into one of the distinctive styles of landscape architecture.

OH, GNATS

By MAUDE McCORMICK

Oh, gnats that sting, cutworms that chew,

Grimly I mix your poison brew,
My ears are bit, my blossoms too!
I wish you bugs would let me be
To watch my garden happily,
To see the blossoms come and go,
The daffodils and tulips grow,
The rainbow iris in their prime:
I love them, when I have the time!
Oh, for a mighty, magic curse
To pack all pests within a hearse!



A MOUNTAIN TRIP IN SEPTEMBER

GEORGE W. KELLY

SEPTEMBER is the "in-between" month. The great wealth of the summer flowers is gone and the fall effects have not as yet appeared. It is the time to look at the masses of flowers in the distance rather than the variety of little flowers close-up. It is the time to enjoy the leisure of the fruiting season and drive out where both the nearby fields and the distant mountains can be enjoyed.

This interesting circuit is suggested for some nice September day. The total distance will be about 90 miles without side trips, and the total time about five hours, not counting the time taken for hiking. To keep away from the highly travelled roads I would suggest leaving Denver on Highway 58 by the way of 44th Street and Golden. Go up Golden Gate Canyon to the junction with Highway 119. Continue to Eldora and as far above as the road is passable, then return by Pinecliffe, Coal Creek and Arvada.

Along the road, and in vacant places, as we drive west from Denver,

we will see many Annual Sunflowers. There will be some flowers remaining of the Rocky Mountain Beeplant (*Cleome*), the Evening Star (*Mentzelia*), and Prickly Poppy. Milkweed pods will be showing up along the fences, and the Missouri Goldenrod will make yellow spots by the roadsides.

As we come close to Golden we will see the fuzzy-white heads of the native *Clematis* in great masses where the vines have clambered over Hawthorne and Chokecherry bushes. Occasional groups of *Yucca* loaded with their large seed pods will be seen on dry hillsides, and the Rabbit Brush will be yellow along the roadsides, in places. Snow-on-the-Mountain (*Euphorbia marginata*) will be seen more and more as we pass through Golden and start up the canyon. Just west of Golden we may notice several places where the old-fashioned perennial called Ragged Robin or Bouncing Bet has naturalized itself along the roadside.

A little way up the canyon we

will begin to see more Gumweed, Perennial Sunflowers and Golden Asters with their yellow flowers. We may see a few blue Harebells still persisting in odd corners. The low-growing, light pink Cleome will be along the edges of the road in places.

The hot south slopes will be covered with Mountain Mahogany bushes with their fuzzy-tailed fruit, and the Wax Currant with its red berries. Occasional specimens of the much-dwarfed Hackberry will be seen. The Broadleaf Cottonwood will give way to the Narrowleaf kind. Mullein stalks may be seen along the road, looking much like miniature Saguaro Cactus. The yellow sulphur flowers with their mats of gray leaves will become more and more numerous.

As we get farther up the canyon the character will change and we will see patches of the native Sumac which will soon be a bright red. Asters, both white and purple will become more and more plentiful until they dominate the hillsides. Some specimens of Eriogonum, which looks like Baby's Breath, may be seen if we look carefully.

Towards the west end of this road we begin to get to an altitude where the mountain things are more plentiful. Along the streams will be the native Alder, Native Birch, Chokecherries and Mountain Maple. Up the hillsides will be specimens of Thimbleberry bushes, and massed on northern slopes, patches of Ninebark.

Purple and white Thistles will occasionally be seen and there may be some Paintbrush, Horsemint (Monarda) and Gaillardia still in bloom. The white heads of Yarrow will be seen everywhere and an occasional clump of the Pearly Everlasting. The Blazing Star (Liatris) and Black-eyed Susan should be in their glory, and moist places along the streams should still show many Goldenglow.

As we get higher in the mountains we will begin to see groves of Aspen, which will be turning yellow towards the end of the month. Here we will also begin to see the Bush Cinquefoil and its yellow, rose-like flowers, stems of Miner's Candle, Green Gentian and purple patches of Fireweed.

As we get onto Highway 119 we will travel through solid stands of Lodgepole Pine, "thick as hair on a dog." We should begin to see some nice Spruce in moist places and will surely stop to admire the "Perfect Spruce" just before we come to the Eldora junction.

We will want to drive up through Eldora and beyond as far as our car will perform, then hike out along the stream or hillsides to see the remaining flowers that show what glories have just passed. If we look closely we will find evidence of White Paintbrush, Rose Crown, White Bog Orchid, Brook Saxifrage, Small Willowherb, Monkshood, Monkeyflower, Pyrolas, Senecios, Veronicas and Sedum.

The trees will be largely Lodgepole Pine with occasional Blue Spruce or Englemann Spruce. Native Honey-suckle bushes, Red-berried Elder, Bilberry, Gooseberries and Raspberries will be found in the proper places.

As we go back down the road to Coal Creek we will review those plants that we saw on the way up and, if we are observant, may pick out a few more. If time permits we will get out and hike around in likely looking spots to see if we can find remains of late flowers or seed pods of earlier-blooming plants.

Much of the time that we are on Highway 119 we will probably be admiring the view of Arapahoe Peak, Long's Peak and the other rugged mountains visible from this stretch of road. They truly represent the glory of our Colorado scene.



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TO VISIT OUR CHRYSANTHEMUM FIELDS DURING
THE BIG ANNUAL FALL BLOOMING SPECTACLE



The above photograph shows a limited part of over 50,000 plants that produce a million or more blossoms showing maximum color from about Sept. 25 to Oct. 15. (Some are in bloom earlier, some later.)

New and standard varieties in practically all types are grown out in the open without protection. Many gardeners make notes and selections in the fall from actual varieties blooming in our fields for next year's garden—and many more visitors know they are welcome to simply enjoy the color masses on any enchanting Indian Summer day.

Chrysanthemums are but one phase of our nursery operations. In addition, one of the most comprehensive general ranges of Colorado-grown and adapted nursery stock in the region is supplied to our patrons.

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LOVELAND, COLORADO

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Plains Region"*

SOME CULTURAL SUGGESTIONS FOR TULIPS

By LESLIE F. PAULL

DO NOT cut off tulip tops, no matter how ragged the appearance! If you will sacrifice the price of one top-size bulb this fall, you will be in a position to understand the reason. Cut it through the middle from tip to base, and pry out the center. You will find there some fairly well developed flower-buds in miniature. How did they get there? During the few weeks after flowering, while the tops were still green, the materials from which they were being made were manufactured by the green tops. Also even more was being furnished for the enlargement of the mother-bulb, for the production of offset bulbs and "pips," for the beginnings of next year's leafage, and a heavy amount for the production of seed-pod and seeds. For the manufacture of all these materials in the brief time before the plant goes on its long vacation, every possible square inch of leafage needs to be saved. Even the flower stem bears from one to three leaves. I know you want long stems, but you'd better compromise with a shorter stem for a better prospect for next year by leaving one or more of these leaves. Few people are interested in producing seedlings—a rather difficult procedure. If you are not, snip off the seed-pods as soon as possible after the sepals fall. Thus the considerable amount of materials used in the production of the seed crop are diverted to the bulb.

In the perennial bed the clumps should remain undisturbed for from three to five years, or even longer if they continue to be floriferous. There usually comes a time when the clump becomes bulb-bound, how soon

depending upon soil and variety. Crowding of the bulbs below ground reduces the production above ground in a manner similar to root-binding in potted plants. Do not transplant bulbs except when dormant. Root systems begin to develop in early fall. After that I leave them strictly alone until the tops have died in the following summer. Tenants forced to move in the spring had better leave the growing plants behind: they get but little good out of their acquisitive impulses.

Bulbs ripen in late June and early July. If they **MUST** be dug and stored there is an advantage in digging as soon as the tops turn yellow. If you have ever had the experience of trying to find the bulbs after the tops have disappeared, and having found none, had them spring up to mock you in a bed you designed for another purpose, you will know what I mean. After digging, dry the bulbs in the coolest and driest place with free circulation of air. They should not be put in closed containers, such as jars, cans or covered boxes. They give off moisture and, with limited air-space, mold and rot. Paper containers and unglazed flower pots are satisfactory. Do not try to "strip" them right after digging. In a week or two the old root-ring may be damaged. If freezing weather creeps up, before all the bulbs are in, do not make the mistake of putting them in the furnace room, or even in the cellar, but on the back porch or an unheated room or in the cold garage. Dormant bulbs suffer from heat and moisture, not cold. Watch then for a winter break and unfrozen ground.

SOME RANDOM NOTES ON TULIPS

ANNA R. GARREY

WE have no record of a period of "irisomania", or even of "roseomania", but recall your history, there was a "tulipomania" in the year 1637. With this familiar fact in mind, I make bold to say that, in the year 1949, whether you can spend five dollars, or five hundred dollars, whether you are a real dirt gardener, a casual observer, or even just one of those annoying "flower snatchers" who wreck our borders, you will surely get value received in a purchase of tulip bulbs.

If your conditions are right and if you have planted and fed properly, you may have your beauties for years in increasing numbers. Perhaps not in the original size, but in gay naturalized groups about your borders.

I had some of the originally-prized Clara Butt for twenty years. To be sure their pink color grew pallid, their size small, till they looked like quaint little old ladies. On the other hand, I have had bulbs which bloomed magnificently only to disappear entirely in a season or two.

In this brief comment on tulips I shall venture but two suggestions on the manner of planting. One, avoid digging holes for your tulips with a sharp, pointed trowel, for you are apt to make an air pocket at the base of your bulb which will result in a "blind bulb". Two, if you will plant your bulbs at the depth of a foot—as George Kelly suggests, they will have a better chance for survival among your perennials in the border.

We have no flower which masquerades in so many guises as the tulips. As a lily, a peony, even an orchid—for some of the lavender Parrot Tulips have such an appearance. You could imagine any of these as you

come into your tulip garden on a spring morning.

With an almost unlimited range of color, with such a variety of form, why do we not make use of these lovely blossoms in a really fine composition?

If you have a comparatively small, shady garden with adverse conditions to combat, think of your tulips even as annuals. Pretend that you have found a tiny woodland glade filled with rare white lilies growing tall among the ferns. You will not be far wrong at that, for your tulip belongs to the Liliaceae, but your secret in this case will be the lovely lily-flowered White Duchess Cottage Tulip with its featherings of pale green, turning finally to pure white.

Try using only white in such a garden as this, starting the season with White Hawk, which is a short single of globular form, very early and very fine. Groups of these planted toward the front of your border might precede the White Duchess, which will be scattered among your ferns like Mariposas in an Aspen grove.

Follow White Hawk with Kansas or Kantara which come before the Darwins. These are the new, long-stemmed Triumphs, an intermediate between the very early or later Tulips, such as White Duchess. Use Mt. Tacoma or Snow Prince, the peony-flowered double Triumphs, where you may want a solid mass of white, but avoid disturbing chaste White Duchess in her ferns with such a massive planting in her immediate vicinity.

Then come the noble, chalice-darwins, Glacier and Zwanenburg, or lovely Cottage, Cantara. These also might be kept slightly away from your

woodland White Duchess, perhaps at the end of your borders.

Distinguished as the white garden may be—and you may feel that I have spoken too much of it in these brief notes—still white is difficult to use, in my opinion. It may be weedy—like Yarrow in a meadow, too tenuous, or it may be spotty in its sharp contrast to other colors. It takes skillful handling.

The gay colored border is, of course, fascinating beyond measure. Whether you buy in large quantity, or small — even to a meager dozen bulbs, adventure is yours.

Try breaking the rule of mass planting some time and put in only one dozen brilliant Parrots, Sunshine, for example, or the deeper yellow-orange favorite. Use these singly among your perennials. The result will surprise you.

And while we are speaking of Parrot Tulips, try a number of these fascinating, fringed beauties. The familiar pink Fantasy, the original sport

from Clara Butt, is enchanting along with orchid-like Gadelan, a Violet Queen. And there are fiery reds now, like Red Champion, for those who are brave enough to use them.

A mixture of these in your picking garden will bring you endless pleasure.

Before we speak of bread and butter Darwins, Cottage and Breeders let us mention, along with the Parrots, the caviar of Byblooms, Bizarres and Rembrandts. Buy a few of these also for your cutting garden with their yellow, red, brown, lilac, violet or white grounds and fantastic stripes and flames.

Perhaps some clever gardener will use these interesting variegated flowers in a border with both taste and originality.

I recall over the years the gayest sight: a straight garden walk, perhaps a hundred feet long, leading to a somewhat formal house. On each side of this walk in a border fully three feet wide, grew an amazing



prodigality of these tulips glittering and swaying in the spring sunlight. Daring, but successful enough for long remembrance.

Among these less usual forms, try the earliest of all, the little-used Tulipas, found growing wild in the woods of Turkey and Asia Minor. Many of them are brilliant in color, small, but distinguished. Lovely little Clusiana, only 12 inches high is cream colored, with beautifully pointed petals and outside markings of a reddish pink; Kaufmaniana, the "water-lily" tulip, but eight inches high with yellowish heart and outside petals red with a creamy border. A mass planting of either of these under evergreens will reward you.

In your colored border visualize your tulip in relation to its background. The pink Darwins, Aphrodite, Princess Elizabeth, Venus or Rosabelle against the fine color of a Mrs. Wilmot Lilac, or with the foliage of a purple Plum; think in terms of the shrubs in your background.

I have a personal preference for the use of tulips in a border rather than in a stereotyped row, or in formal beds, so I suggest you plant your Darwins, Cottages and Breeders in shoals among your perennials with one color melting harmoniously into another.

Mrs. King suggests a preponderance of tulips with a low visibility, such as the Bishop, Anton Mauve, La Tulip Noire, for example, high-lighted by those of more intense and brighter color like City of Haarlem, red; or Mrs. Sheepen's, yellow. No more skillful planter than Mrs. King, yet there are times when I vow that I shall have only primary colors in vivid contrast to each other in my own borders.

It has seemed to me often that some of the most exquisite of the darker and subtler shadings of the

Breeders, with their bronzes, and many of the deep purples of the Darwins, failed to register in the border, although indoors, in proper flower arrangements, they are incredible in their beauty.

I find myself entranced with the vigor of these contrasts of primary color. Let me only say, however, that where you use the subtle darker tulips in your border be sure that they catch the sunlight and that they are set off by the other tulips, or the blossoming shrubs which surround them.

Consider thus the possibility of a ground color, such as the woodland Phlox divaricata. It will take time to establish this among your perennials, but its lavender spring freshness becomes a binder color for the entire garden. It harmonizes in the most amazing manner with reds, yellows, pinks, purples, or other lavenders.

Try planting various lavender or pink tulips near your Bleeding Hearts; Forget-me-nots with the fine yellow Avis Kennicott; marvelous yellow Mrs. John Sheepers with the primary red of the Flanders Poppy. The gentlemen will like this best. Some of the ladies will also!

Use double early Peach Blossom as a spring surprise scattered singly among the ground-cover of your Myrtle. The contrast with the leathery dark green of the Vinca and the delicate, wide blossom of this early tulip is a delight.

One word of warning here about the so-called "pink". It covers a multitude of shades in the catalogues as do the purples which range from the reds to the lavenders. You may get an unpleasant surprise, especially on the pinks, and find yourself struggling with a truly recalcitrant color, if color can be such. Triumph tulip, Eros, for example, is handsome in itself, but, like some of the phlox seed-

lings, it lends itself poorly in many combinations turning toward the reds.

Once you have started your tulip collection, study them during the blooming season. Make notes as to height, color and form. Collect various catalogues from year to year, for many of the staple varieties remain in stock for years. Clip the best of the fine color plates which appear from time to time and work out your border's color scheme with these.

Make your own catalogue of favorites by ordering just a few of many kinds and colors of tulips for your cutting garden from year to year, culling combinations of color and form from these to be used another year in your borders.

One last warning—take heed not once but twice.

First allow your flowers the privilege of returning their food to the bulb at the end of their generous blooming. This means the maturing and yellowing of the foliage—unsightly perhaps, but a small price to pay for such generosity of bloom. One meticulous gardener I know neatly fastens the yellowing leaves in inconspicuous packages with a rubber band, one to each bulb!

And at very last beware of your gardener lest this fate befall you and you love your treasures too dearly:

"He dotes! he dies! He, too, is rooted there.

O solid bliss which nothing can destroy.

Except a cat, bird, snail, an idle boy.

* * * * *

Nor are these enemies I mentioned all;

Beware, O florist, thy ambition's fall.
A friend of mine indulged his noble flame

A quaker served him, Adam was his name;

To one loved tulip oft the master went,

Hung o'er it, and whole days in rapture spent;

But came, and missed it, one ill-fated hour:

He raged, he roared! "What demon cropt my flower?"

Serene, quoth Adam, "Lo! 'Twas crushed by me;

Fallen is the Ball to which thou bow'dest thy knee."

EDWARD YOUNG



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WOULD a tulip be worth five thousand dollars to you? What kind? Oh, you know one of those broad, rounded erect-petaled forms of unusual colors—not the narrow-petaled varieties called thieves. Possibly a Witte Croonen or a Semper Augustus. A nation thought so, not so many years ago as the history of governments go.

Out of the Orient came a flower which was particularly conducive to the Dutch soil. Its particular encouragement in development, which reached its climax in the Tulip Mania at the cost of 13,000 florins per bulb (\$5,200) in 1636, came about as a result of two reasons. One was the Dutch passion for agriculture and the second centered in the fact that the Dutch were engaged in a peculiarly costly war when the country was laboring under the delusion that public wealth could be secured by foreign conquest.

Early in the seventeenth century the flower began to assume importance, but until 1634 the trading in the flower was limited to professional growers and experts. Within a short time after the public entered the negotiations, prices began to rise and speculation began in earnest. By 1636 the desire became a mania. Six score tulips sold for the benefit of an orphan asylum brought ninety thousand gilders (\$36,000). Other bulbs sold for four or five thousand gilders (\$1,600-2,000). A pound Witte Croonen cost fifty dollars and sold for one thousand four hundred and forty dollars. Used in the same way as stocks the bulbs were negotiated at the exchange in the hope that prices would rise. In most cases the seller

sold bulbs he did not possess for the promise of money the purchaser did not possess. Paper profits were tremendous, and this in turn hastened the mania until February of 1637 when the prices collapsed. In Amsterdam alone the purchase and sale of bulbs amounted to ten million gilders (\$4,000,000). Cash had a value many times what it is worth today.

After government attempts to straighten the chaos of broken agreements and cities taking steps of one type or another, the situation eventually cleared, leaving the collapse more psychological than economic desperation. Civilization the world over benefited, especially the Dutch—the land of wooden shoes, windmills, and tulips.

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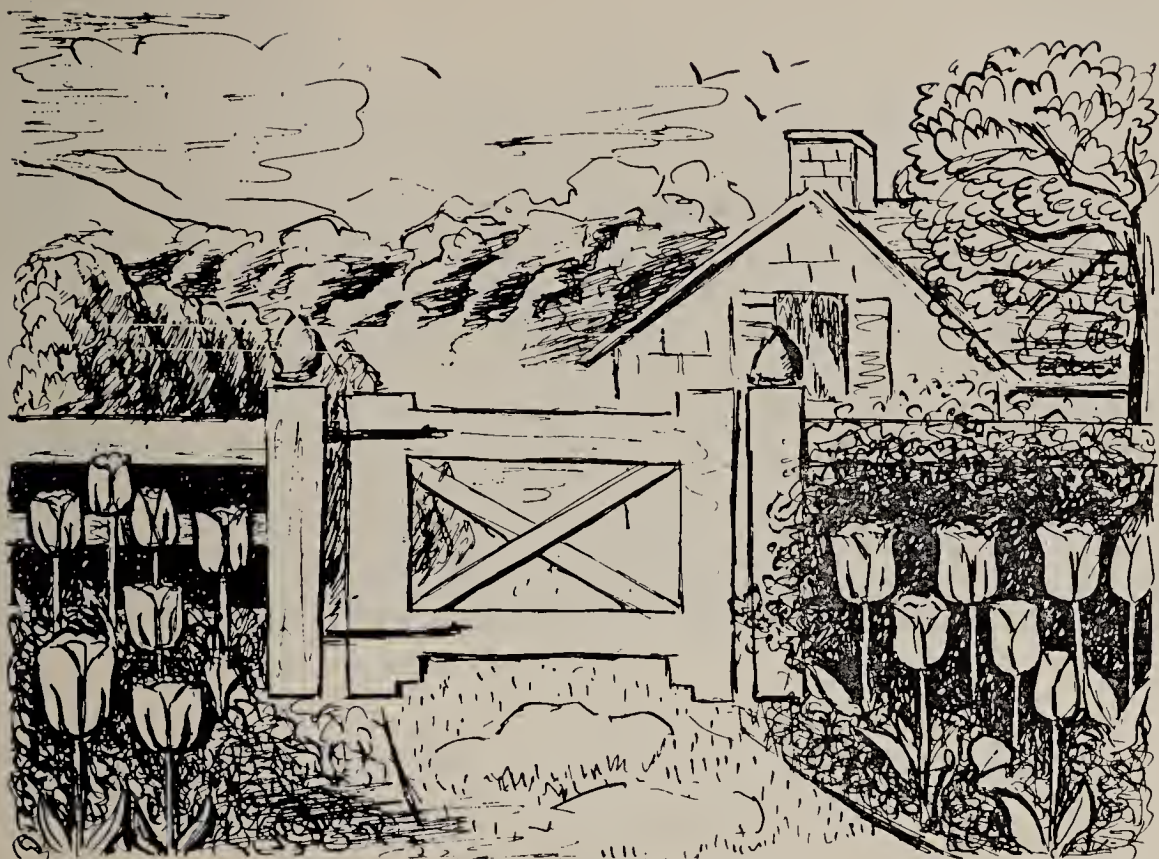
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The Continental Divide country which should not be grazed.

I CAME, I SAW, I BELIEVED

GEORGE W. KELLY

FOR several months now there has been raging a bitter war concerning overgrazing of Colorado lands. The U. S. Forest Service is supposed to be on one side and the stockmen on the other. During the second week in August, this year, I was invited by the Routt Forest Advisory Council to come and see with my own eyes and form my own conclusions.

The Routt Forest Council is pioneering in a new approach to these controversial questions. This group is composed of 12 men from the six major interests in the National Forest lands. They meet together and study their problems on the ground. Then they are able to come to conclusions which are based on fact and not emotion.

After looking over the condition of the forage and soil on the high lands along the Continental Divide they agreed to a recommendation that all this land be withdrawn from grazing as soon as possible. This will affect about 16 allotment holders, which

represents roughly 16,000 sheep. Sheep have been grazing these lands for around 40 years, the majority being driven in from Wyoming each summer.

Naturally the sheep owners will not like this, but it is of far greater importance that these mountain slopes be saved from destruction than that some stock owner make a few more dollars today.

We found many slopes which for miles had only a sparse vegetation of any kind, and many other places where there was much green, but this consisted of unpalatable weeds and grasses of poor soil holding capacity. Nature always tries to fill vacancies, and where desirable grasses have been eaten off and not allowed to go to seed for many years, the less desirable plants are encouraged to come in and fill their place. Now there are many places where vast slopes are either barren or covered with weedy plants of little value.

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show the water absorption capacity of these "beaten out" areas very much less than in normal areas. With much of the natural "blotter" missing the rains run off rapidly taking valuable soil with them. To those who have not studied this situation or who do not know plants, it may appear at times that the slopes are covered with an adequate green cover; but anyone may check these plants and discover that they are now largely plants of little real value.

There are many who would ignore the real reason for this serious situation and try to correct it with re-seeding, terracing or the building of dams. When the facts are studied no other conclusion can be arrived at other than that the ruthless overgrazing has been practiced for many years. Much of the really high land should never have had any grazing allowed on it at all. Here every plant has enough of a struggle to make growth in the short season allowed it, without being continually eaten off and tramped out.

A great acreage of the lower slopes and meadows could have been kept in productive capacity indefinitely if a reasonable number of stock had been grazed on it. Now it is so taken

Green, yes, to one rushing by, but nothing but dead Wyethia and sagebrush as far as can be seen.



over by worthless weeds and so much of the top soil has been washed away that it would take many years to bring it back, if it could ever be done. A great number of the owners of this grazing stock are out-of-state corporations. Some of the local stockmen are just as concerned with the disappearing of the range as the Forest Service people are. They realize that the greed for today's dollar has ruined the chances of their grandchildren ever making a living in the stock business.

We are foolish to consider other remedies until we get at the root of the evil and stop this overgrazing **AT ONCE**. Every acre of land should be appraised for its greatest value, whether for limited grazing, recreation only, water holding capacity or other uses. When this has been agreed on the adjustments must be made regardless of whom it temporarily hurts. It is foolish to continue practices which are known to be dangerous to the population as a whole just to keep from temporarily hurting some one. As civilization develops we must, more and more, consider the welfare of the masses rather than one small selfish group. Proper land management is essential, and all agencies should be coordinated to make this management the most efficient.

There are some arguments that much of this desolate land was always so; that the soil and moisture has never supported a greater quantity or quality of plants. Disproof of this argument is evident where there have been fenced off plots or inaccessible areas. I have seen places where on the ungrazed land succulent grasses and plants were abundant and across the fence there was almost nothing but sagebrush and bare soil.

To continue overgrazing this abused land is like hitting a man when he is down; it is destroying recreational possibilities and beauty; it is allowing life-giving water to run off and

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take valuable top soil with it; it is dooming to starvation unborn children.

This issue is no longer controversial. Thanks to groups like the Routt Forest Advisory Council, anyone with reasonable intelligence may see the conditions on the ground and can form unbiased opinions. We should consider seriously what kind of custodians we have been of this land that has been entrusted to us for a generation, and ponder whether coming populations may be justified in blaming us for destroying their chance to grow sufficient food.



The quest for treasure is ever illusive. Value is so seldom intrinsic. The charm of a well-appointed garden does not rest upon a single gem but rather upon a setting of many jewels. One familiar with the diminutive alpine flowers of the higher Rocky Mountains cannot fail to see them after a time as brilliantly colored gems. So intense is their coloring with petals snugly overlapping that the illusion is not easy to avoid.

D. M. ANDREWS.

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CHLOROSIS

By CHARLES DRAGE

*Horticulturist for the Colorado
A & M College Extension Service*

When plants turn yellow the sick condition is called chlorosis. The reasons are many and many may be obscure. Not enough of certain elements and too much of others may cause it to occur. Over-irrigation, poor drainage, lack of soil aeration, insects and diseases may cause chlorosis.

Chlorosis is much worse following bad winters and cool, damp springs and is showing up now in many areas. Several causes may combine to make a correct diagnosis impossible.

Of the various types of chlorosis the one most common in Colorado is the one where iron is lacking. The trouble is associated with high alkalinity

and the plants are unable to use the iron in the soil.

Results secured by treatment are erratic and temporary. The best chlorosis control consists of prevention; planting varieties adapted to the area and keeping them healthy.

Several methods of control are recommended for trial. Spraying with a 1/2-2 percent solution of ferrous iron sulfate may cause the plants to green up. One pound of ferrous iron sulfate dissolved in 10 gallons of water makes a 2 percent solution. Applying 1 pound of ferrous iron sulfate to 10 square feet of soil and watering it in has given results with shallow-rooted plants.

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GARDEN GAMBLING

MAUD McCORMICK

NASTURTIIUMS are a favorite annual with me. They represent the first chance I ever took in gardening, that of planting seed far earlier than the wise oldsters advised. I was seven and starting my first flower garden. And that spring an unusually kind Nature tempered the wind for the wee plants. Consequently, a very young and very proud gardener had masses of bloom long before the plants of wiser gardeners showed their first buds.

Since then I have taken many chances in gardening. I have never expected too much of those risks, however, always remembering my father's remark, "Daughter, when we go into partnership with Nature, we're the most reckless gamblers there are." But my garden gambling has been fun, and much of it, like the nasturtiums so long ago, has won sweepstakes for me.

That is not meant to suggest that Klondike gardeners invest heavily in tropical plants or even that those of my own arid climate specialize in marsh marigolds and mountain laurel. Yet much can be done toward making plants happy in environments to which they are not accustomed. In collectors' gardens here in Colorado Japanese iris often flourish, though their lives may be shorter than in happier climes. Even in Wyoming, I am told, rhododendrons have been grown.

As my own garden funds have always been limited, my gambling tendency has perforce been held somewhat in check. Nearly every new season, however, has found me watching eagerly the growth of some stranger to the old standbys of my garden. The pulmonarias came to me

as aliens from moist, rich Michigan soil. Now they ring their rosy lavender and salmon pink bells north of the house early each spring, where sun-worshippers pine away and die. Trollius, too, produce their lovely globe-roses there though they are happiest in damp eastern woodlands. Coral bells and timber phlox, both quite non-cooperative at first, have now settled down to producing more plants and blooms each year. So, on ground seemingly adapted to grow only bearded iris and yucca, I am gradually achieving variety and a long blooming season. This year I have my first bloom from a Christmas rose! Oh, being one of Nature's garden gamblers pays dividends in happiness and achievements!



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SEPTEMBER GARDENING

SEPTEMBER is the time of ripening, not only of seeds but of all woody growth. It may be a dry month, but that is as it should be so that plants are not encouraged to make soft growth that can not ripen up sufficiently to live through the cold winter. AFTER the leaves have fallen, which indicates that the plants are dormant for the season, then everything should have a thorough soaking.

The temptation is to assume that all the garden work is done for the season. Many insects lay eggs now for next season, and some may do a great deal of damage yet. Look especially for aphids on Dogwood, Snowball and Euonymus just before the leaves fall. These insects can be killed at this time and avoid the early spring damage.

Gladiolus should be dug after frost and stacked in shallow boxes with the top left on until it dries up. They are as easy to store as onions. Cannas should be dug with some earth left around them and kept in a cool, not too moist, spot, like under a greenhouse bench.

Cleaning up thoroughly makes a lot of difference to the fall garden. Remove the old hollyhock stems and dead growth from the Oriental poppies and Shasta daisies. Rake the walks and odd corners, but don't try to make the garden too neat; a few leaves blowing around look good and actually help to supply the mulch that all plants need.

Many of your perennials are sufficiently dormant now that they may be transplanted or thinned. Things like peonies and bleeding hearts must be moved in fall if they are to do their best. Thin out the iris, Shastas, daylilies and other rank growing plants.

Plant your tulips, narcissus and other spring blooming bulbs as soon as you can get them from the dealer. They may be left out of the ground for weeks longer with little damage, but are better off back in the ground. After the first killing frost, the tender bulbs should be dug. This includes the Dahlias, Cannas and Gladiolus. Dahlias should be very carefully dug so that the neck of the tuber is not broken. They must be carefully stored where the temperature is above freezing but not hot, and where the moisture is just enough to keep them from drying up but not enough to make them sprout.

A great majority of the Colorado Junipers in this area were seriously damaged by aphids last spring. You should be on the lookout for their return this fall. Spray with Blackleaf 40 or any good contact spray. Look for ants or ladybugs crawling on the trees to indicate the presence of aphids.

Take time to look around in the parks and neighbors' gardens when the leaves begin to turn in fall. Make notes of those plants which are especially attractive and look over your grounds for appropriate places to plant them.

September is a time of reckoning for your year's garden work. Make notes now of the things that you have done that have worked out well and also make notes of your mistakes, so that they can be avoided another time.

During the season many problems have come up that you thought at the time you would like to know more about. Now is the time to get some books on these subjects and learn new things about your gardening: new fertilizers, new insecticides and new plants.

COLORADO ROADSIDES

The pictures on the opposite page are reproduced from paintings by Miss Elizabeth Spalding. They graphically show the difference between a roadside view spoiled by unnecessary billboards and the same spot as it would be with the signs removed. Miss Spalding has presented the Association with the originals of these pictures and Mrs. James Waring has had them framed. Mrs. Waring has also arranged to have the color plates made from which these reproductions are printed. It is planned to print folders later which can be used to interest people in the value of improving our roadsides.

In the last few months there has been organized a very live committee on Roadside Improvement and State Parks headed by Mr. Carl Feiss of the Denver University School of Architecture. This committee has representatives from all the various groups which should be concerned in the improvement and preservation of the natural beauty of the state. Their objectives include the setting up of a suitable State Park system so that sites of scenic, recreational, botanical, or historical value can be set aside, and also that recreational facilities may be provided for those communities which do not have ready access to the National Forests or Parks.

Roadside parks and camp grounds will be encouraged in places where they are needed. The beauty of the roadsides will be considered. This will include zoning to prevent scenic spots being marred by unnecessary signs or by the removal of the natural vegetation. All towns in the state will be encouraged to dress up their approaches, which at the present time are the ugliest spots along our highways.

This committee is now preparing maps, investigating legislation, and discussing plans for publicity which will encourage the improvement of Colorado's roadsides. Since the state will always depend to a great extent on her attractiveness to vacationists this committee feels that we should give more consideration to making our visitors feel welcome, and in making the state attractive to them.



Weeds always make an effort to form seeds before frost. A few wild lettuce, lambsquarters and dandelions can produce enough seed to cover the garden with plants in spring. Clean these stragglers out and compost them.

More and more gardeners are learning the value of humus to their soil and are saving every possible bit of vegetable matter for the compost heap.

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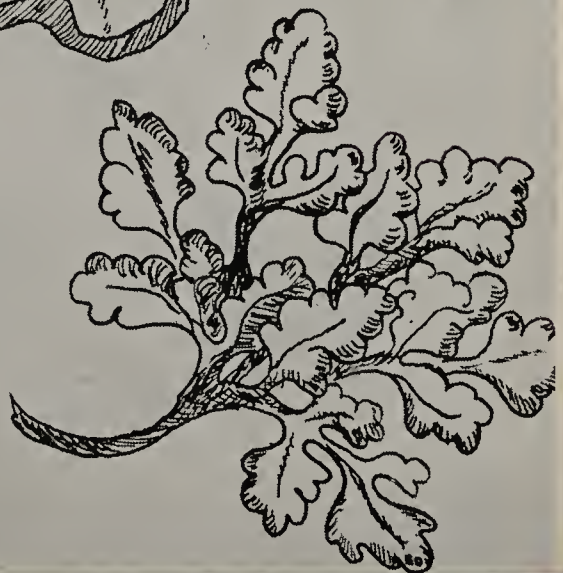
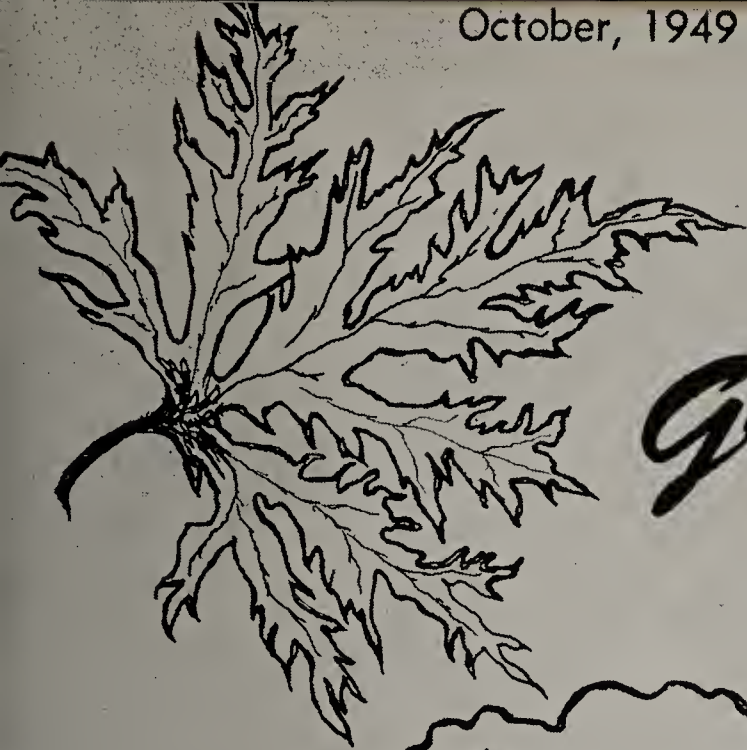




October, 1949

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The Green Thumb

Vol. 6

OCTOBER, 1949

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*Drawing on Front Cover by Lorene Smith and Evelyn Osborne.
Geranium Leaves Illustrated Are Described on Page 31.*

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Plants Don't Last Forever

The very best designed and planted grounds may look ragged and unsatisfactory twenty years from now unless much care has been given to trimming and replacing. Plants are continually growing out of bounds or dying from old age.

It is very important to have a suitable design made before planting and to have an experienced nurseryman select the proper plants to create this design. It is also necessary to trim and replace plants as the years go by.

A beautiful evergreen may increase in value each year up to a certain point and then it may become not only worthless but a detriment to the place. When such a situation comes up it is hard to heartlessly remove this once beautiful specimen, but that may be the necessary thing to do.

NOW IS THE TIME:

To plant most evergreens.

To plant Dutch bulbs and Oriental Poppies.

To discontinue watering and let woody plants ripen up.

To spray for aphids on snowballs, dogwood and possibly Colorado Juniper.

To transplant some of the hardy woody plants. Ask your nurseryman what things he recommends to plant this fall.

To see if your plants have made the growth that you think they should. If not ask yourself if you have watered them deeply and thoroughly and not too often. Have you kept the pests under control? Are you sure that everything was planted in good soil? Have you used too much fertilizer or not enough? Have you kept the competing weeds out and properly mulched or cultivated the soil?

What a difference there is in plants properly cared for their first year and those which have been neglected.

THE COLORADO NURSERYMEN'S ASSOCIATION

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Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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OCTOBER SCHEDULE

- Oct. 2—Sunday. Trip to Forest Experiment Station on St. Louis Creek beyond Fraser, Colorado. 190 miles, round trip. Leave Horticulture House 8:30 a.m. Bring lunch.
- Oct. 5—Wednesday evening, 7:45. Commercial Horticulture Class at Horticulture House. Subject: Evergreens, Their Use and Care, Robert E. More.
- Oct. 7—Friday evening, 7:45 at Horticulture House. What a Colorado Gardener Saw in South America, Mrs. Kathryn Kalmbach.
- Oct. 8—Saturday, 2 p.m. Horticulture House. Plant auction.
- Oct. 12—Wednesday evening, 7:45 at Horticulture House. Commercial Horticulture Class. Subject: Shrubs, Hedges, Vines and Roses, Dr. A. C. Hildreth, Maurice Marshall, William Lucking.
- Oct. 13—Thursday evening at Horticulture House. Rose Society
- Oct. 14—Friday evening, 7:45 at Horticulture House. Designing Ming Trees, Mrs. C. A. Hedberg.
- Oct. 16—Sunday. Fall drive to Critchell and vicinity. 80 miles round trip, interesting views. Leave Horticulture House, 9:00 a.m. Bring lunch. Register early.
- Oct. 16—Sun. 2:30 p.m. Dedication of M. J. Webber Botanical reserve.
- Oct. 18—Tuesday evening at Phipps Auditorium. Victor H. Ries lecture.
- Oct. 19—Wednesday evening, Horticulture House, 7:45. Commercial Horticulture Class. Subject: Shade and Ornamental Trees, Earl Sinnamon, George W. Kelly, Ray Williams.
- Oct. 22-23—Saturday p.m. and Sunday a.m. Farewell-to-Summer, overnight party under rocks in the Devil's Head area. Good food, stunts, adventure. Call for particulars.
- Oct. 26—Wednesday evening at Horticulture House, 7:45. Commercial Horticulture Class. The How and Why of Naming Plants, Dr. William Weber
- Oct. 28—Friday evening at Horticulture House, 7:45. Horticulture Panel. Fall Garden Problems.
- Oct. 30—Sunday. Trip to the slopes and ridges near Loveland Pass.



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A MOUNTAIN TRIP IN OCTOBER

WITH GEORGE W. KELLY

IN October the fall colors in the mountains should be at their best; and fall color in Colorado mountains means, first of all, Aspen. So, let us take a trip where we may see the Aspen at their best and where we may drive on the secondary roads with less traffic and unusual views. The trees and shrubs, both deciduous and evergreen, will be the most conspicuous plants to be seen, but a few purple asters and yellow composites may still be in bloom. Seed stalks of many plants will be in evidence and will challenge us to identify them with their familiar flower of summer.

I will outline a favorite circuit of mine which should take all day to do in a leisurely way. The distance will be about 210 miles unless side trips are taken. I would drive south on highway 85-87 to Littleton and turn west there at the old mill. Drive a mile west on Bowles avenue, crossing the Platte River and driving under the arching limbs of the large old maple, elm and cottonwood trees. Then turn south on 124, or the Platte Canyon road, and follow this on up the Deer Creek road to 285, the Turkey Creek road. The Platte Canyon is always a pleasant drive at any time of year with its view over irrigated fields to the tree-lined river beyond.

At the entrance to Deer Creek Canyon notice the old lime Kiln and across the road the old stone fort with 1886 over the door. Another mile up the road there is a strip of land belonging to the city of Denver where many people enjoy picnicking. Most people who drive through here

do not realize that north and south of this road there are some of the most interesting rock formations in the Denver area. This should be one of our first state park sites. As you drive along notice the white seed head of the Clematis climbing over the native shrubs, and the native sumac and wildgrape which should be in full fall color.

The Deer Creek road beyond here is narrow and crooked but much more interesting than the broad crowded pavement of Turkey Creek. You should notice the Oregon Grape and other low plants beginning to turn their fall colors, and notice too the interesting seed stalks of many familiar flowers. You will see scattered Cedars and Ponderosa Pines on the dry south slopes, Douglasfir in dense stands on the north slopes and native Hazel, Chokecherry, Dogwood, Alder, Maple, Roses, Birch, Narrowleaf Cottonwood and various Willows along the stream. You will not be able to drive fast along this road so will have time to enjoy the natural beauty of the roadside.

A few miles further up the canyon you will begin to see Aspen which should give you a foretaste of the big display of color coming later. From the top of the divide down to the Turkey Creek road there is maintained a private botanical reserve which should be a good example for others to follow. Mr. Bigger, who owns this land, plants seeds of many fine natives and patrols the road daily to prevent trespassing.

I would follow up Turkey Creek, by Shaffers Crossing and Bailey, to Kenosha Pass. Notice the fine specimens of Blue Spruce along Turkey Creek. Beyond Bailey you should be-

*Picture on Opposite Page Shows Pikes Peak from the Rampart Range Road.
Photo by Chas. J. Ott.*



Milkweed.



Miners Candle.



Evening Star.

gin to see slopes covered with Douglas fir, interspersed with flaming patches of Aspen.

As you pop up over the top of the hill at Kenosha Pass and see the whole South Park spread out before you, you will want to stop a while and admire this view. No matter how many times you take this drive, this sudden opening up at Kenosha Pass is a thrill. If the season is right there will be bright yellow patches of Aspen brightening up the sides of the slopes in beautiful contrast to the dark green of the evergreens higher up. As you drive on down into the valley you will wonder just what influences the aspen groves to remain in these exact geometrical shapes, and why the evergreens stay up at the top of the slopes. Is it soil, moisture, grazing or fire? Your guess is as good as mine—possibly a little influence from all of these things. I would turn left at Jefferson on to state highway 77, the Tarryall Creek road. You will find this a charming drive, and as you go by some of the ranches and meadows you will feel as though you were in New England or some foreign country, far removed from all familiar places.

First along Jefferson Creek and later as you follow down Tarryall Creek you will see miles of peaty

pasture and hay land. About seven miles along this road you will come to interesting rock formations making entrance gateways to the canyon. Beyond these there will be slopes covered with the dwarfed Bristlecone Pine, looking much like the Pinyon Pine of farther south.

A little farther along you will pass the old Tarryall reservoir and fish hatchery, and will soon begin to see Aspen in the hills close by and to notice the Tarryall range on your left dominated by Bison and McCurdy peaks. About 25 miles out of Jefferson you will pass the steep rocks and open grassy slopes where the Bighorn sheep spend the winter and can often be seen from the road.

Five miles or so along the road you will notice that the Ponderosa Pines have replaced the Bristlecone of higher up.

This Tarryall cutoff comes back to highway 24 near Lake George. As you drive east along this pavement you will admire the view of Pikes Peak straight ahead. I would continue on this road to Woodland Park, and here I would drive straight through town and turn north on the Rampart Range or Devil's Head Road. This is a very fascinating route following the high ridges to

Sedalia. It may be narrow and crooked, but is always in good driving condition because it is made of the disintegrated granite from which all the hills in the region are made.

Some wonderful views are to be had along this route and groves of Aspen and patches of Scrub Oak should give close-up color. In the little ravines will be the typical growth of Ponderosa Pine, Spruce, Douglasfir and Aspen. You will notice along the road and across the valleys the distinctive piles of weather-worn granite boulders which characterize this country. The tall straight stalks of the green gentians will be conspicuous in open places along the road.

About ten miles out of Woodland Park you should see many specimens of the Limber Pine, which are distinguished from the other evergreens by their gray bark and large cones. Here would be a good place to stop and make a collection of the evergreen cones: Limber Pine, Lodgepole Pine, Ponderosa Pine, Blue Spruce and Douglasfir. About 18 miles out of Woodland Park there will be an interesting study in trees; the Aspen will all be very tall and slim in the moister places and the Lodgepole Pine in the typical dense stands on the drier slopes.

A few miles farther along you should begin to get glimpses of the plains to the East as well as the high mountains to the West. Soon you will also see Devil's Head showing up through the trees. It will be worth your while to stop a while and admire the view at the Devil's Head marker and the Virgin's Bath Outlook. Also remember to look back here occasionally to the really grand view of Pike's Peak to the south.

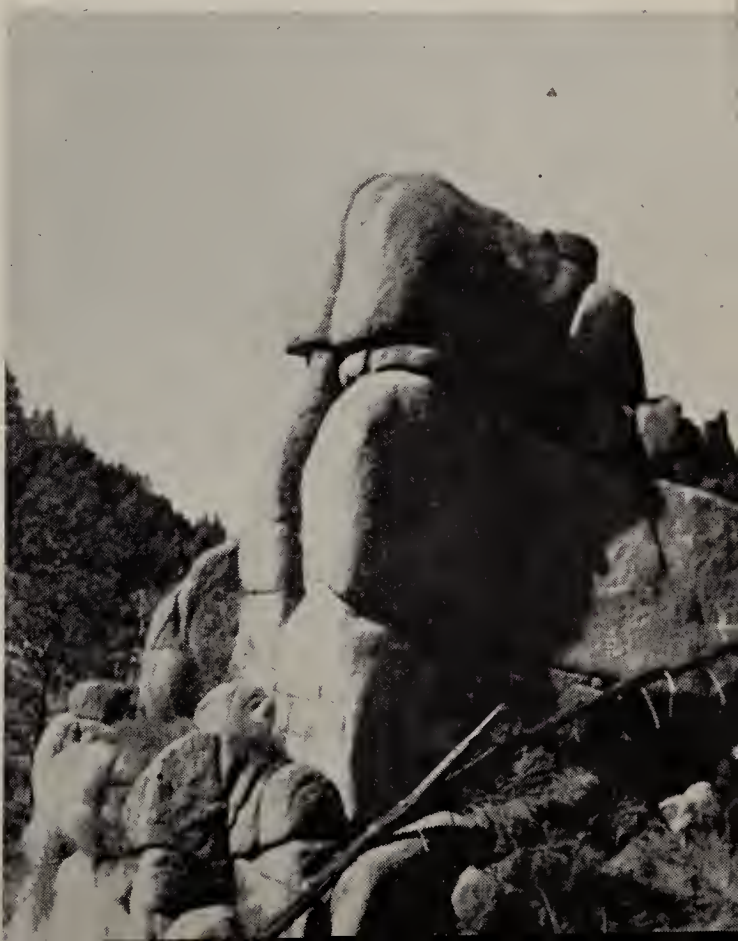
As you pass the west slope of the Devil's Head formation you will suddenly get a view north down Deep

Creek to the Platte Valley. Views both East and West will be good here as you drive along. At 41 miles out of Woodland Park you will join the Sedalia-Deckers road and another ten miles down this road will take you to Sedalia and the pavement to Denver.

If you still want to stay out of traffic as long as possible you should turn north in the center of town and follow the old gravel road for three miles until it turns back on to the pavement. The Cottonwoods along Plum Creek on your left should be colored up for fall. About 9 miles north of Sedalia you will pass through "Pesman Park" which was planted by the state highway department before the war. We should have more of these beautified places along our highways.

At about 200 miles you should again pass the old mill at Littleton and head for home. You will enjoy this trip both for its distant views and close-up beauty. I hope that you will come with me again.

*Typical Weathered Granite Formations
Along the Rampart Range Road.*



THE "WHY" BEHIND GARDEN DESIGN

MRS. PERSIS OWEN

BACK of all garden design is or should be functional reasoning. It was thought the "why" which prompted the design of the garden pictured here might be of interest to Green Thumb readers.

There were four main reasons why this garden was designed as it is. First was the garden needs of the owner; second, the style, type and color of house; third, the size and the lay of the plot, utilizing any advantages or disadvantages it possessed; and fourth, keeping maintenance at a minimum.

The owners had three definite requirements for the garden. They wished to keep the feeling of space the large sized plot gave. They wanted

a terrace for outdoor living, intimate enough for family use, yet large enough to accommodate a good sized party. A flower border that would give a spot of color in the garden and supply cut flowers for the house was a necessity, but must be of a size that could be easily taken care of.

With all this in mind, a plan was drawn up and revised three times, each time getting nearer the desired goal. The plan consisted of an upper terrace, a lower terrace, a large rectangular garden with flower border, and a long narrow alley garden.

The upper terrace opens directly off the dining room and is about 35 by 40 feet. It was divided into two sections, about one-third covered and





two-thirds open. The roofed area, being relatively small compared to the open portion, gives the idea of coziness without any feeling of being cramped. An architect was called in to design the covered area, and his solution to the problem proved a most happy one, getting away as he did from the usual lean-to porch effect. The lacy iron supports for the roof correspond to other iron work used elsewhere in the house.

One of the plot's disadvantages was a lack of interesting levels. To overcome this and also to lower the steps from the dining room to the ground, the upper terrace was raised two steps. Flagstone was used for the retaining wall, the floor and steps, since the house itself combines both brick and flagstone, the color effect being a pinkish-tan which blends nicely with the stone.

A ground level terrace, directly attached on two sides to the upper terrace, was incorporated in the design for three reasons. It made the garden much more flexible for entertaining; it made an interesting pattern on the ground; and it definitely holds the upper terrace and its covered area down to earth. This lower terrace was given a semi-modern design. There were two reasons for this. The first was to help tie it to the house, which though not of modern design gives one a clean-cut modern feeling. The second reason was to enhance the interest of the ground pattern. This terrace is of the same pink flagstone as the upper terrace, but here, to accent the design and give texture, a three foot brick border is incorporated.

Beyond the terraces, the garden is divided into two parts; one is a long narrow alley, the other a large rec-

tangular garden. This division was determined by the shape of the plot and by the desire to give pattern to the garden proper. The two gardens are divided by a clipped hedge kept low so as not to interfere with the feeling of space. The openings between the two gardens and to the lower terrace are flanked by flowering trees for the very definite purpose of accent.

The dividing line between this property and the neighbors on the west was one of the serious disadvantages of this plot. Apparently when the house next door was built, the ground was filled. This left an ugly $2\frac{1}{2}$ foot dirt bank sloping into the large rectangular garden. On top of this bank was a very lovely clipped privet hedge. It was decided to capitalize on this adverse situation by building a flagstone wall running par-

allel with the hedge and about four feet out, the top of the wall to come just above the base of the hedge, then to backfill and use this space between the wall and the hedge as a raised perennial border. This wall brings some of the stone work of the terraces into the garden proper.

Planting in the entire garden has been kept to the minimum, used only so far as it furthered the design; hence, upkeep is also kept to its lowest possible point. Undoubtedly more planting will be done from time to time, for who, owning a piece of ground, can resist the urge of Spring. At tulip time one must of necessity put something into the soft brown earth—a shrub, a basket of pansies, forget-me-nots, or what-nots. At this season the difficulties of upkeep are happily forgotten. One plants joyfully, and calls his labor good.



ANNUALS IN THE DENVER PARKS

BY FRANCES WHITE

THE Denver Parks plant out an average of 235,000 annuals every spring, consisting of about 75 different varieties, some of which have as many as 20 different strains which we plant out every year.

To those of us who work with them, these plants fall into certain classifications, like the people we know. Some are completely satisfying—they always have such wonderful color and good growth that not even a brand new never-did-this-work-before gardener can fail with them. Some we remember because of their definite personalities, or their tendency to be timid and retiring. Then there are the irresponsible ones nobody trusts completely, and there are even some very unpopular ones that we have tried and tried, and finally given up as hopeless.

It is important to have variety. The Denver Parks have an unusual display of annual plantings unequaled anywhere in the region, and this is partly due to the large variety of plants we put out every summer. We keep trying new ones; and even older ones that aren't always the biggest or the brightest, because even they will look nice in a mixed planting, or in a bed where the visitor can walk up close to them.

Our season is not ideal for early showing. Late spring storms keep the plants in the greenhouse until the first of June, so that by the time they are adjusted to the outdoors, and get their growth and bloom, the summer is well advanced. But the parks are still full of color until the middle of October, when the first killing frosts usually begin.

A number of the plants we put out are not annuals, properly speaking,

but are perennial plants, renewed each season from cuttings, or planted afresh from seed because it is impractical to winter them over.

There are certain old friends which we can always depend on, and these add spice to life by coming out in new and finer strains. Geraniums are always one of the best plants for park beds, because of their sturdiness and bright bloom. Out of 10 different varieties, these are choicest: American Beauty Red; Better Times, a good deep red; Madame Landry, the finest salmon pink we have, and nearly the most popular of all. Radio Red is a new one you will see more and more of. Salleroi is a little one with light green, white-margined leaves that we use only for bordering, and it is very nice.

Fibrous-rooted begonias are always excellent bedding material. Vernon, probably the favorite of all the park men, has a bright pink flower with shiny green leaves, and with a little encouragement, grows into a beautiful bushy plant about 18" high. Pink Radio is new this last season and is similar to Vernon, and very fine. Christmas Cheer is planted widely, and its handsome green foliage and bright crimson flowers make it a great favorite. There are two beautiful bronze-leaved begonias, Indian Maid, and Carmen, which look especially handsome when bordered by such low growing light colored plants as *Centaurea candidissima*, or dwarf pink and yellow snapdragons.

Every year there seems to be a change in the quality of the best pink petunias. Once, we decided Celestial Rose was the brightest, finest pink, but now Glow and English Violet are sharing honors with it. Cheerful is a

beautiful salmon pink with crisp flattish flowers, and Theodosia is a ruffled petunia with larger, deeper pink flowers. As a rule, the ruffled ones are too sprawly for good bedding material, but this one is a long time favorite. The best red this season is King Henry, a very beautiful rich dark red. Velvet Ball and General Dodds are also good reds. Elk's Pride and Blue Bedder seem to be the best dark purples, and Heavenly Blue the best light blue. Among the whites, Cream Star made a first appearance last season, with a hint of creamy yellow in the throat, and White Cloud, White Beauty and White Perfection are all very good pure whites.

Verbena, both grandiflora and compacta, is another annual which always make a nice show. It is low and spreading, and makes dense masses of gay colors. The strong colors are beautiful alone, bordered with some contrasting plant. Blue Sentinel, a rich purple, and Spectrum Red each make a striking picture bordered with pale yellow Coleus Golden Bedder, or light green Pyrethrum aureum, or

something light gray, or pink, or yellow. Dannebrog, a deep red relieved by a large white eye in the center of each floret, always makes me think of new red and white checked gingham. Verbena venosa is one of our finest single varieties for easy growth and brilliant color. It has rich lavender flowers, and grows up to 18" high. It does well in hot dry places, and its color is very exciting seen alone or combined with Salmon Pink Geraniums, yellow and pink Snapdragons, Coleus Golden Bedder, etc. Verbena erinoides has a quieter personality, less intense than either venosa or the grandifloras. It has finely cut foliage and small rosy lavender flower clusters, and is restful to behold after the rampant color of the others.

Very delicate colors aren't too successful in park flower beds where it is important to have an effect that is noticeable from a distance. But there is a place for them in large areas of flower planting where paths lead the visitor in and out around the beds, there they are very charming. Planted alternately with some strong colored flower, they provide it a perfect foil, and gain by the juxtaposition themselves. I remember a very pale petunia called Amaranth Pink, that contributed more to the effect of its combination with dark red or dark purple ones than pure white would have done. It seemed to take on the color of its neighbor and reflect the color itself.

More and more park men say they like the Dahlia-Flowered type of Giant Zinnias best. The flowers are a trifle bigger, the petals are not quite so stiff and brittle-looking, and the colors seem more glamorous each season. We put out 1300 Zinnia Exquisite (a perfectly delicious rose-pink) and 1600 Canary Bird. All the rich oranges, and various intense reds and purples are excellent for park work. Take a dark purple zinnia and



Some Annuals Are the Quiet Type, and Reveal Their Charms Best on Close Inspection.

alternate it with the handsome white Purity, like Tom Lynch did in the big flower beds at 3rd and Ogden, and you really have something to behold. Mixed Giants are always good, too, of course, and we use a lot of Pompon Zinnias—the more intense colors are best. One of the most brilliant of all is the little *Zinnia linearis*—a small variety growing up to about 12", with very, very orange flowers. It is fine for narrow beds, and bordering taller plants. It is another one of those very strong personalities, like most zinnias, and takes attention away from more delicate things.

Of all Giant Marigolds we have planted in the past several seasons, there are two that are causing more and more comment. They are Ball's Mission Giants. They are like large chrysanthemums and come in light orange and a wonderful clear yellow. We use dwarf marigolds mostly for borders, and they look very handsome with flowers that go with their warm colors. There are several nice yellow ones now—Limelight is my favorite, beautiful little chrysanthemum-like flowers in a pale lemony yellow, but there are also Gold Crest, and Yellow Pygmy. Royal Scot is unusual with its striped gold and mahogany flowers.

Just a brief note on some of our very best border plants. White and Lilac Alyssum are so good we used almost 11,000 this year. The cuttings from Blue Ageratum produce very fine rich blue color. We have nine different varieties of the foliage plant, Coleus, and about five of these are really outstanding. Green and White is wonderful to put around American Beauty Geranium, and Red Salvia. Coleus Golden Bedder is the finest yellow border plant we have. There are few colors it does not set off to advantage, and its dense growth seems to improve every bed it surrounds. Verschaffelti has a rich reddish-brown

leaf that looks wonderful with pink Cleome and pale pink and yellow zinnias. Queen Victoria has bright yellow leaves with a deep edging of red, and is very complimentary to flowers with those colors, like mixed zinnias, and orange marigolds, and red geraniums.

In closing, let me mention a few unusual varieties which are successful in the parks. Pink Cleome, the sophisticated sister of our wild Bee-plant, grows up to four feet high, and has large pink flowers which look like pink silk spider webbing over a transparent spherical frame. *Pennisetum ruppelianum* is a most beautiful ornamental grass about two feet high. The grass heads are long and soft and dusty pink. Its lovely soft texture is a delight to behold, and it is a perfectly charming foil for stiff zinnias or cannas. The Cigarette Plant, or *Cuphea Firefly*, is low and creeping and has small brilliant orange tube-shaped flowers. It always grows well, and its interesting shape and color are well worth close inspection.



Some Annuals Have Aggressive Personalities.

AFRICAN VIOLETS

MRS. THEODORE GREER

THESE small plants are the most satisfactory of all house plants from many standpoints: they take very little space, give an enormous return of bloom from the deep blue violet of "Viking" to the palest blue of "Sky Blue"; from the intense red violet of the two top petals of "Bi-color" to the pale "Lavender Pink DuPont"; from the lovely pinks of "Pink Beauty" and "Pink Girl" to the faint shade of "Blushing Maiden"; and last, the sparkling "White Lady" and "White Amazon". In size one may favor the large bloom of the DuPont strain or the lovely butterfly flower of "Ruffles" or one of the double type. There are only nine known species of African Violets, while there are over one hundred varieties.

Contrary to general opinion African Violets are not hard to grow. There are a few basic rules gained from the history of the plant, originally found in its wild state growing in

the tropical climate of East Africa in soil containing decayed vegetable matter, and in crevices of limestone as well as granite rock, but always in the shade. From these facts we know that to have healthy blooming plants we must have a temperature not lower than sixty degrees F. and that a temperature of seventy degrees F. to seventy-five degrees F. is ideal. A temperature of less than sixty degrees F. checks both growth and flowering. Fresh air is necessary too, but avoid placing plants in draft; indirect ventilation is best.

We must have a rich, porous soil. I prefer the following mixture; one part leaf mold or rich garden loam, one part Colorado black mountain peat moss, with enough white sand and vermiculite to make the mixture light and crumbly. Sterilize in the oven for one hour at two hundred degrees F. to assure freedom from garden worms and small flies et cetera. The largest flowers I have ever seen on African Violets were on plants growing in this mixture, and they had not been fed any commercial plant food or fertilizers of any kind. However, after a plant has been in heavy bloom or in a pot for a long time it will appreciate a feeding of some complete plant food at the rate of one teaspoon to one quart of water every ten days to two weeks.

African Violets will thrive in any light situation, or in a sunny place if the sun is filtered by a curtain of lace or net. For example, an east window will do very well in winter without a curtain, but in summer a bit of screening is most necessary.

Watering is one of the most important things in the culture of African Violets. Use water of room tem-



Drawing by Evelyn Osborne.

perature, do not keep the plant standing in water all the time. Water when the soil in the top of the pot is dry to the touch. Water from either the top or the bottom of the pot, taking care not to get water in the crown of the plant if watering from the top. In a very dry atmosphere such as we have in Colorado and surrounding states it is well to supply additional humidity when growing tropical plants. If many African Violets are grown close together, humidity is increased by evaporation. An easy way to provide extra humidity is to keep plants on saucers or trays of moist sand.

Because of the fuzzy quality of the leaves, the plant will need cleaning now and then to look and do its best. This can be done in two ways; brushing the leaves with a soft camel's hair brush, or by washing the plants, using room temperature water in a florist's spray or the rubber sprayer attached to the sink. It is well to do this when the plants need watering, as the leaves will not be so brittle and easy to break. Water five degrees higher or lower than room temperature will cause leaves to spot as will placing the plants in bright light or sun before they are dry.

In this dry climate we are comparatively free of pests that are very troublesome in a more humid atmosphere. But there are some troubles common to African Violets I feel I should mention. Crown Rot is indicated by limp outer leaves that do not become firm when watered and is caused by over watering and a fungus which flourishes in a soggy soil.

Mealy Bug is the cottony pest that lurks in the crowns and under leaves. It is sometimes possible to pick them off, one at a time, with a toothpick. This is a tedious job to be done every day until no more are visible, and it is really wise to destroy badly infested

plants, unless they are very choice ones.

Cyclamen Mite probably cannot be seen without a hand lens, but you will know it from the appearance of the plant which will show a dwarfed abnormal center, the leaves will be more hairy and cupped upward or downward. Segregate any such plants immediately. Sodium selenate probably is the best treatment, but is very poisonous and should be handled with extreme care. Cyclamen Mite is spread by contact, wash hands thoroughly after handling a suspected plant.

Thrips are almost invisible pests, but their presence is announced by premature flower drop, white streaks on the flowers, and tiny brown scars on the leaves. Thrips and ordinary plant lice can be controlled by dusting with D.D.T. or spraying with a Pyrethrum and Rotenone mixture.

Springtails is the name given to the tiny darting insects seen on top of soil and in the saucer after watering. These insects seem to be harmless, but can be controlled by an application of nicotine sulphate solution.

African Violets can be increased in several ways: through division, leaf propagation, or from seed. If you have a mature plant with more than one crown, you can with care, separate it into individual plants. Nice plants can be grown from leaf cuttings, and there are several ways to do this. Place a short stemmed leaf in water until it shows tiny hair roots, then pot it in a rich potting mixture, keep moist, and soon small plants will appear, the time depending on the variety and location. Or, one can place leaves in vermiculite, or vermiculite and sand.

Seed may be purchased or obtained by hand pollination. From pollination to bloom will take fifteen to eighteen months, but it is well worth the time and effort if one has the patience.





FALL COLOR IN LANDSCAPE DESIGN

BY EDGAR A. JOHNSON

Landscape Engineer—Denver Public Schools

ONCE again autumn is upon us. To me this season seems the turning point of the year more than any other. It signals the end of another summer's gardening and the nearness of the first snow-fall. It is also the beginning of another school year for the nation's children and college students. Perhaps more important to plant lovers, it is the month in Colorado when the trees stage their annual color extravaganza.

Most of us while enjoying this show make mental notes of particularly glorious trees to be planted in our yard. "Next spring", we vow, "we'll plant this tree and that tree—what a show of color we'll have!" But when spring arrives we have forgotten these plans. Our minds are full of plans involving spring flowers and summer greenery. Too late, the following September, we remember again our fall color plans. At this point I should give some good advice on keeping a note book to preserve these plans. However, I fully believe that it is just as well we don't plan too completely on fall effects. The show of these colors is so brief and too soon gives way to brown leaves and bare branches. We must also consider summer effects and the winter appearance of plants, both of which are with us for longer periods.

On the other hand, every planting should have plants which are colorful at this season. The plants available for fall effects are many and varied. They include trees, shrubs, and even annuals and perennials. The foliage colors are usually in the yellow, orange and red portion of the spectrum. Contrast can be provided by remaining green foliage, tree trunk colors and the blue of the sky.

Among the plants with red foliage, my favorites are the Stag-horn Sumac and Common Woodbine, both of which give out with their bright scarlet quite early. These are both quite common about Denver. Less common, but also among the red group are the Scarlet, Red and Pin Oaks. Around Colorado Springs the Scrub Oaks are very beautiful, and the Ginnala Maple is well known and commonly planted chiefly for its fall color. Other trees and shrubs in the red group include the Purple-leaved Plum, Japanese Barberry, Red Dogwood and Euonymus. Trees such as Norway Maple and Buckeye tend to be more orange than red.

Yellow and yellow-orange foliage is perhaps more common in the Denver region. In the nearby mountains the Quaking Aspen is my favorite of all the yellow-leaved trees. Unfortunately the difficulty of transplanting Aspen makes its use in home yards very limited. Easier grown trees in this yellow group include Honeylocusts, Cottonwoods, Black Walnuts, Birches, Hackberries, American Lindens and others.

The blending of fall colors presents little difficulty in planning. All the shades of yellow, red and even purple seem to blend well. The green trees also blend well, as well as providing excellent backgrounds. However, more striking effects may often be had by careful planning to emphasize colors.

Massing of the same variety of trees or shrubs often seems to increase the intensity of the colors. Aspen forests are well known for their vivid yellow—a yellow which seems to fill the air. I'm sure all of us can recall many such brilliant Aspen groves. These

groves of Aspen seem much more vivid than do individual trees. Sumac, Woodbine and others seem more vivid in large groups.

The opposite is often true of some trees. A pale green tree which would be lost among other trees, particularly those of brighter hues, may stand out much more by itself. Add a background of dark evergreens such as Blue Spruce and this pale tree may become more outstanding than those of much brighter colors where each is competing with others.

In addition to providing a background, green trees might be considered for their own worth. Evergreens such as the Spruces, Firs and Pines lend a pleasant feeling of stability among the more frivolous deciduous trees making their last try for glory before being defeated by frost and cold. Deciduous trees which are late to turn also give pleasant contrast.

All the fall color is not in the tree tops and woody shrubs. Annuals such as Kochia or Burning Bush, provide a brilliance surpassed by few other plants. Hardier flowers such as Chrysanthemums, Zinnias, Marigolds and others bravely continue blooming long after the more succulent flowers are killed, and are part of the fall picture.

Lastly, late fruits such as the bright red rose hips add their small spots of color. If these last after the leaves have fallen, they may be one of the few bits of color to brighten the cold winter landscape. Bright stems such as those of the Red-twigged Dogwood and white trunks such as those of Birches and Aspen, and even the brown trunks of other trees all lend to the color fantasy of autumn. As the leaves fall these become more and more evident and form the dominant plant features of the winter landscape.

With the last of the bright leaves

falling from the trees, the pure white of new fallen snow seems as welcome as were the bright colors just a few weeks previous. It must be just human nature to like change, else why would we so joyously welcome each new season of the year as it unfolds.

DEATH OF THE LEAVES

BY BURTON O. LONGYEAR

The smelly autumn days are come, the
saddest of the year,
Of burning leaves, and smoke-filled
air, that starts the smarting tear.
Heaped by the curbing of the street,
the autumn leaves lie dead;
They rustle to the garden rake and
to the small boy's tread.
The robin and the wren are flown,
We miss their summer lay,
A sneeze, a cough we hear instead,
through all the gloomy day.
Where are the leaves, the autumn
leaves, that fall upon the ground,
That mulch the naked earth and with
fertility abound?
Alas! they all cremated are, a smudg-
ing fire they fed,
You should have seen the neighbors
choke, and heard the words they
said;
The leaves that should have added to
the richness of the soil,
Pollute the air with smoke instead, and
healthful breathing spoil.
'Tis nature's way to nothing waste,
but all leaves conserve,
Within the soil their elements and
substance to preserve.
So compost them or spade them in,
where soil is hard and lean;
They help to make the flowers bloom,
and keep the garden green.

Attend the plant auction at Horticulture House Saturday afternoon, Oct. 8. We will all benefit.



FALL PLANT SALE

Come to the plant auction Saturday afternoon, October 8, at 2 p.m.
Held at Horticulture House, 1355 Bannock St.

Bring some plant to be sold if you have a suitable specimen. Plan to buy a few of the things you need. Clair Robinson will be in charge, but we will all help. Nurserymen are donating hundreds of fine plants for this event. Proceeds will help the Association to give better service.

There will be potted roses, Ferns, 'mums and evergreens. Tell your gardener friends not to miss this sale. Here is a chance to get good plants and help the Association. Remember the date and place—2 p.m., Oct. 8, Horticulture House.

GROW GAY GREEN VINES

CLAIRE NORTON, *Laporte, Colorado*

WHEN Winter blusters about outside the windows, nothing gives quite the lift to the spirit as do gay green vines—growing safely indoors. Too, these selfsame vines will thrive equally as well for a city apartment dweller as for a suburban home owner.

Leading all other vines as favorites for growing indoors are the many varieties of ivies. They merit their popularity, being exceedingly decorative and not hard to grow. There are, however, many other trailing and vine-like plants of interest.

The most satisfactory of the lot is the rugged *Philodendron cordatum*. It is so undemanding and takes to the dry atmosphere of artificially heated rooms without too much protest. It can be grown in those charming ceramic pots away from the windows, or its plebian clay pot hidden in that good looking copper hanging pot Aunt Miranda sent for Christmas.

Many strange names appear in florists' listings of *Philodendron*, too hopelessly entangled for the taxonomist. A large-leaved form is sold as *P. pertusum* and is the one florists offer trained to strips of cork bark or cholla stems. The "Variegated *Philodendron*" can be bought under the name of *Pothos aureus*, and is, strictly speaking, not *Pothos* at all, but *Scindapsus*. There are places where the striped and mottled foliage of this plant can create a delightful accent.

Monstera deliciosa is another climbing member of the *Arum* family—to which both *Philodendron* and *Pothos* belong—which when young can be used for foliage indoors and trained on a suitable support or kept cut back for a bush-like effect. Mature plants attain too great size for the home.

Grape Ivy, *Vitis rhombifolia*, is a

valuable vine for the window garden. It enjoys sunshine, grows rapidly, has attractive foliage and is free from insect pests. It makes good "background" for other house plants. *Cissus adenophodes*, is a still more beautiful relative of the Grape Ivy. It prefers a trellis for its clinging tendrils and a humid atmosphere.

Wax Vine, *Hoya carnosa*, when well grown is a handsome window garden vine, with its leathery foliage and wax-like blossom. *Hoya* was a favorite of grandmother's, but then she generally had more room to give it than does her grand-daughter. *Smilax*, too, was used by an earlier generation for a light and airy background and might well receive consideration if the window garden offers sufficient space. Morning glories and climbing nasturtiums could well be used on trellises in a sunny window. They are less ambitious indoors than out.

Whether or not the *Peperomias* really belong among "gay green vines", they do have a charming way of hanging over the edges of their pots. *P. obtusifolia* with its thick green leaves is easier to grow than the variegated "Watermelon *Begonia*", *P. sandersi*.

Wandering Jew in its many color forms should not be overlooked. These come in white and green striped, in silver, red and green, golden yellow, clear red and fuzzy wine-red, neat, fast growing and showy.

Gray-green and white edged are the leaves of the variegated form of *Ficus repens*, the Creeping Fig, not easy to grow under livingroom conditions, but so delightful a complement to certain modern pottery containers as to merit a careful trial.



LITTLE FLOWERS

MYRTLE ROSS DAVIS

I LIKE little flowers and I have found that a great number of people feel the same as I. The little dainty flowers have more appeal to us than the great big showy kind. I like the alpine and the creeping plants that grow in dense masses at the front of the flower border or in the rock garden.

The very rare dwarf alpine columbine *Aquilegia Saximontana* which grows among the rocks above timberline is far lovelier to me than its sister, *Aquilegia coerulea*, which is the common columbine and our state flower. I grow this tiny dwarf from seed in my garden and it does very well. It blooms in April in Denver, for early April weather in Denver is very similar to July above timberline. The foliage as well as the flowers are very fragrant. It bends its dainty head down among its leaves and hides so that I must hunt for the first blossoms. *Aquilegia Saximontana* is not a common garden flower, in fact it is not common above timberline. Dr. Aven Nelson, foremost botanist of the Rocky Mountain region, told me he had never seen it growing in its native habitat.

Another of the tiny native flowers which I grow in my garden is *Penstemon Crandelli*. It seems to enjoy our garden although I gathered the seed for it along the roadside in South

Park. It is a creeping *Penstemon* that has single blue flowers which bloom profusely all over the fine foliage.

I like the creeping *Campanulas*. They are those blue-bell like flowers which grow close to the ground. *Campanula isophylla* is my favorite. The flowers are star-shaped and light blue. It blooms profusely over a long period. I think it is the very best plant I have in my low dry-rock wall. Another one which I have, and like, is *Campanula Portenschlageana*. It is a little larger, darker blue and the flowers more bell-shaped.

Thymus Serpyllum, or the red flowered thyme, is another of my favorites. It forms a thick mass close to the ground and during the month of June is completely covered with tiny red flowers. It can be planted where it can be walked on and it will not suffer too much from the traffic. It also gives off a sweet thyme fragrance when the leaves are crushed.

One of the sweetest little ground covers that I know of is *Euonymus Kewensis*. It is a tiny vine that does not bloom but is evergreen and grows best in the shade. It was developed in the Kew gardens in England, hence the name *Kewensis*.

I must include *Sempervivum arachnoideum*, or the cob-web house-leek, in my list of favorite little plants. It

is one of those hen-and-chickens type of plants that really has beautiful flowers, but its chief charm is that it is covered with a mass of very fine white hairs that are so arranged that they look like cob-webs. It is a native of the Alps and grows among the rocks. The hair protects it from excessive evaporation in dry weather.

It forms bunches of these tiny rosettes among the rocks in my rock garden and rock wall and I couldn't get along without it.

For a real treat in tiny plants with flowers of brilliant hue and lovely form visit a mountain pass or a high peak in July and see tiny rock plants at their best.

WHY TEACH CONSERVATION?

In the November, 1948, and February, 1949, numbers we gave the first two of a series of three condensations from the outstanding talks given at the Inter-American Conference on Conservation of Renewable Natural Resources, held in Denver September 7-20, 1948. This issue includes an extract from a talk by

JOHN W. SPENCER

*Regional Forester, Forest Service
Denver, Colorado*

TODAY we are talking in terms of human welfare. Tomorrow we may be talking in terms of bare human existence.

The elemental issue is one of stark, cold facts as devoid of sentiment and as incapable of alteration as the laws of mathematics. Any and all educational programs must recognize and emphasize that this is a race against time, an eleventh hour effort to ward off disaster.

The central theme of all educational effort must be the constant and continued reiteration of Man's dependence upon natural resources.

We are all subject to the same great natural forces which control all things. These natural laws, which most of us believe are the visible manifestation of God, are universal and eternal. Man may in some degree alter the effects of natural laws, but he cannot in the slightest change the laws themselves.

Only where Man as an individual,

and in groups as a nation, learns to adjust his civilization to the laws of Nature, can he hope to survive. History bears mute witness to the tragic fate of bygone peoples who either did not recognize these laws or chose to ignore them.

Soil and water combine to produce the vegetation upon which all land animals, including Man, depend for their very existence. All the culture, all the reasoning, and all the scientific advancements of which Man is capable cannot change this elemental truth.

The limiting factor to the sustained population of this entire planet is represented by the ultimate productive capacity of our total soil resources under the very best form of management of which we are capable.

Only to the extent that we husband every pound of arable soil and develop its full, maximum, sustained productive capacity, can we human beings hope to maintain the patterns and standards of modern civilization.

If the youngsters of today, during their impressionable years, were grounded also in the solid, basic principles of conservation and taught the vital relationship between natural resources and national welfare, they will do a good job as men and women far beyond what any of us are doing today.

WAR DECLARED ON PINE BARK BEETLES

By CLAYTON WEAVER, *U. S. Forest Service*

THE Black Hills Bark Beetle infestation has been gradually building up for several years in the mountains west of Denver. In 1948 such a large number of ponderosa pine trees were attacked that it was a major threat to the forests of the area. Home owners in the mountains were justifiably worried about the outbreak.

This summer the various organizations concerned started control operations, although some scattered work had been done in previous years. The U. S. Forest Service, aided by several cooperators, was in charge of the project this year. The Colorado Bureau of Plant and Insect Control, the Denver Mountain Parks, the Denver Mountain Parks Protective Association, Jefferson County, and the Denver Water Board all contributed work, cash, or both.

With such an organization it was possible to bridge the gap between the various land ownerships so that the infestation could be attacked wherever it was found. The work was made possible by a deficiency appropriation passed by Congress late in June. These funds, allotted to the Forest Service, were to be used for control of the beetles on national forest land and for matching contributions of cooperators for work on lands of other ownerships.

The project centered principally out of Idaho Springs, Evergreen, and Bailey, with the heaviest part of the infestation within ten miles of Bailey. Small scattered groups, however, of a hundred trees or more were controlled all the way from Cheesman Reservoir to Clear Creek. In view of the limited funds and the late date at which the project was authorized, it

was necessary to confine the work primarily to the areas where the beetle concentrations were heavy and a real threat to the forests. In between these areas are numerous isolated trees and small groups that time did not permit treating.

A new kind of control treatment was used in this year's project. Infested trees were sprayed while standing, with only the tallest trees being felled before spraying. The spray was a mixture of one part Orthodichlorobenzene to six parts fuel oil. This was applied to the trunks of the trees until the bark was thoroughly wet. The average amount of spray used was $2\frac{1}{2}$ gallons per tree, varying, of course, with the size of the tree.

Several types of pumps have been tried for the spraying, including power pumps mounted on Jeeps. Unless there are large numbers of trees accessible to trucks, however, power sprayers are not as practical as hand pumps. The most successful pumps used on this project were the low-cost Smith hand pumps. These were equipped with the nozzles at the end of six-foot aluminum pipes so that additional height could be reached. A special nozzle tip that throws a solid stream is necessary.

The spraying treatment has proved to be much faster and cheaper than the old method of cutting and burning the trees. A crew of four men can spray about 40 trees each day.

In view of the fact that some scattered infestation still remains, landowners will be interested in knowing how to do control work. The spraying method makes it simple for several cabin owners, for example, to form a group for doing their own work.

Some of these groups have already purchased spray equipment and materials. The necessity for such work is especially great in mountain home areas, where even individual trees are often quite valuable.

The real danger from bark beetles is in their sometimes rapid build-up. Where there is one infested tree this year there will likely be two or more next year. Once the beetles have made a successful attack on a tree nothing can be done to save it. Control work is aimed at killing the beetles before they can fly to other trees.

With these dangers in mind, a few words on spotting the infested trees are in order. The adults, which are black, cylindrical beetles about one-fifth inch long, emerge and attack new trees early in August. They bore through the bark of the tree and construct a perpendicular gallery about twelve inches long, along which the eggs are laid. A fungus disease that

turns the wood blue is also carried by the insects. The principal damage to the tree, however, is done by the larvae. They start out from the central gallery in many small lateral channels. The result is complete girdling of the tree. In a successful attack on a tree, there are hundreds of such beetle families. Occasionally a tree is able to exude enough pitch to kill the beetles if only a few attack it, but they ordinarily attack in such numbers that they are usually successful.

The first symptom that shows up on most trees that have been attacked is pitch coming from the entrance holes. A few trees, however, show only the boring dust. The tree stays green while the insects are developing, and it is not until the next spring that the tree starts to turn brown and die. It is then that the infested trees are easiest to detect, and this is probably the most practical time for the landowner to treat them.

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Professor Victor H. Ries is a national authority on gardening. As a lecturer, he is known in many states. As a garden writer, he is known from coast to coast. His writings include the regular column, "Over the Garden Fence" in the "Country Gentleman", frequent articles in such magazines as "Better Homes and Gardens" and "Horticulture". He is also writing the "Country Gardener's Program Service Leaflet" which is sent out each month by the "Country Gentleman" as a program help to any clubs putting on garden programs, or to any gardeners. He is the author of four garden books, "Annual Flowers", "Perennial Flowers", "Plant Welfare" and "The Pruning and Repair of Trees and Shrubs". He is the co-author with Alex Laurie of one of the leading garden text books, "Floriculture Fundamentals and Practices".

His Garden Clinic column appears

in many newspapers throughout Ohio each week. He is frequently heard in radio broadcasts over W.O.S.U.

Professor Ries started holding flower shows and judging schools in 1931. To date, he has conducted well over 100 of them, not only throughout Ohio, but in many other states as well. In these schools he has trained over 5,000 exhibitors and judges.

As Extension Professor of Floriculture at Ohio State University, Columbus, Ohio, he is known throughout Ohio for the meetings, tours and demonstrations that he has held. As one whose work is his hobby as well as a profession, his talks are practical and delightfully informal. The question hour or clinic which he conducts following each talk gives everyone an opportunity to get their questions answered.

Another of Mr. Ries' hobbies is color photography. The Kodachrome slides he uses with his talks have been taken in his travels through gardens in various parts of the United States.

He is Secretary of the Ohio Association of Garden Clubs. Its 480 member clubs make it the largest of any state garden club federation.

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GRATEFUL GERANIUMS

LORENE SMITH

"Grow Geraniums—they respond!" says Mrs. Charles M. Kassler of Denver. "Plant them and give only a minimum of care—they grow rapidly and bloom to repay you—"

"Respond" Mrs. Kassler's Geraniums certainly do! Sunny south window ledges filled with healthy, happy plants are evidence of this.

The secret? Mrs. Kassler says there is none, but she does have a few tips to pass on to you after 3 winters of living with Geraniums. One, the following soil formula, she has found successful for Denver conditions:

2 parts heavy garden soil

1 part sand

1 part peat moss

Some leaf mold

Other hints worth reading: Don't over-fertilize—this will result in huge juicy stalks and little or no bloom; to discourage excessive vegetative growth, a 4-inch pot (maximum size) should be used; and, to give added blossoms per plant, pinch off until 3 healthy stalks are established, this

should result in maximum quality flowers as well as increased quantity.

Plants should be propagated from cuttings in May or June.

Mrs. Kassler grows varieties that boast unusual foliage shapes and coloration for winter-interest. Some of her favorites include:

'Lady Pollock' with its bronzy-red, crimson leaves, yellow-edged.

'Miss Burdett Coutts'—Similar to Lady Pollock with a white edge.

'Happy Thought'—also called 'Butterfly' because of the white-centered leaf peculiar to this variety.

'Peppermint'—spicy as can be! A velvety leaf with lavender edge.

'Mallichianum'—dainty and fern-like.

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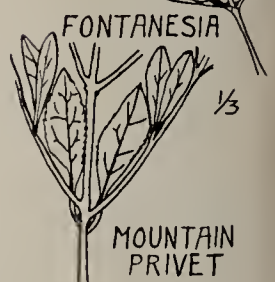
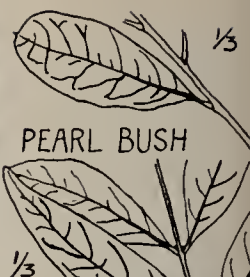
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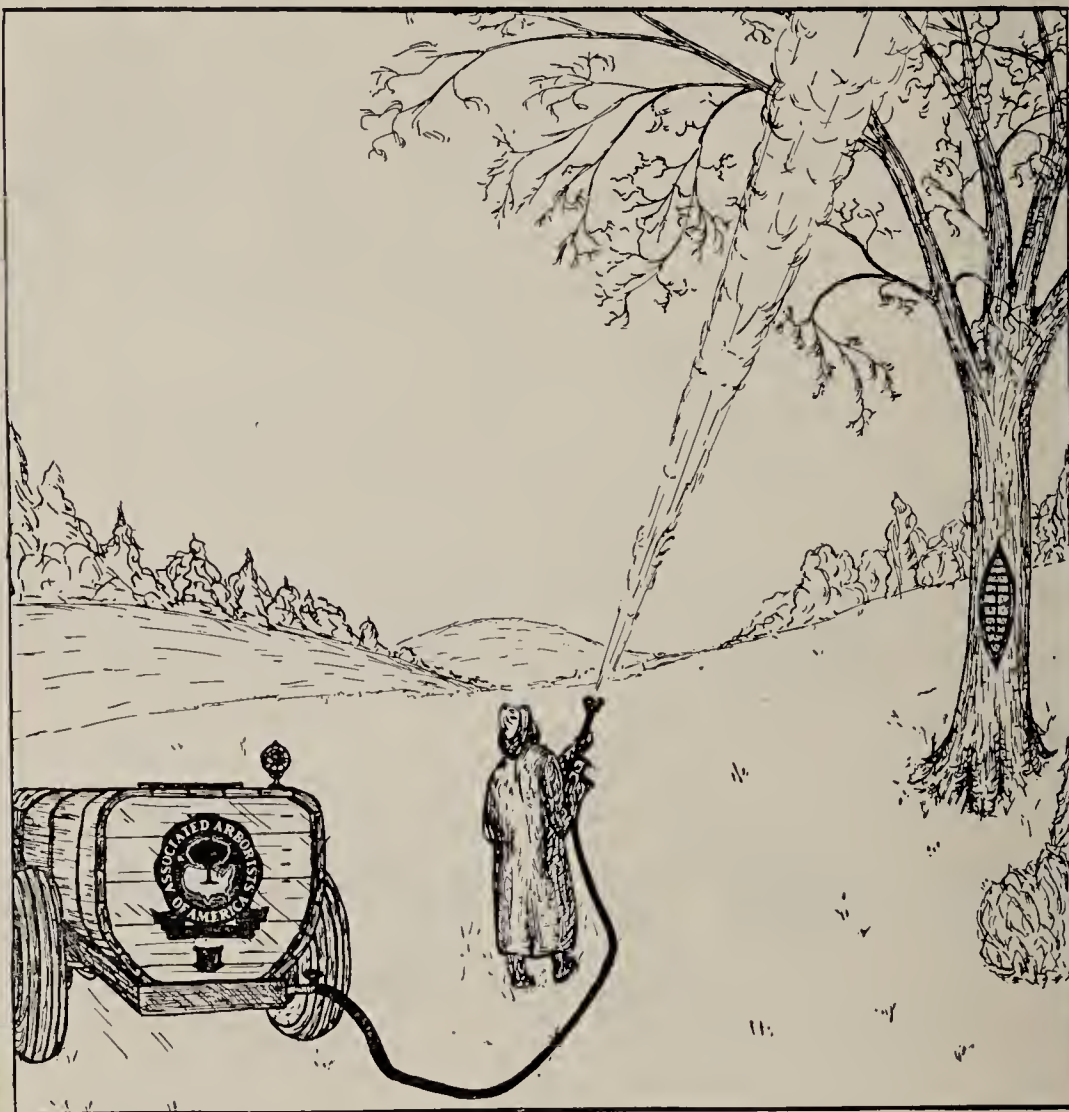
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OCTOBER GARDENING

BEFORE woody plants have dropped their leaves is the time to ripen them up so that they will not make soft growth to be killed by the severe winter weather. They need not be allowed to become bone dry, but surely the water should be considerably curtailed. After the leaves have fallen and they are dormant is the time to give a good deep soaking so that they will be able to withstand the hot sun and dry air of our Colorado winters.

As plants become dormant in fall they may be transplanted safely. Some early blooming perennials are quite dormant in fall. Others, like fall asters and 'mums may still be in full bloom. Deciduous trees will be dropping their leaves soon and may be moved if necessary. Slower, deep-rooted trees are usually moved in spring with greater safety.

Lawns may still be seeded for a week or two. There will be less trouble with weeds now than in spring.

Look over the trees, shrubs and evergreens for long horizontal limbs or dangerous V crotches which might be damaged by snow. Have these carefully trimmed. Other necessary trimming may be done at this time.

Get in your fall bulbs as soon as you can. They like to form roots in the cool fall and are then ready to send up their bloom stalks in spring.

Now is the season to clean up the garden for winter. Cut off the ragged stems of perennials, cut out dead limbs from the trees and shrubs, rake up rubbish and give the hedges a final trim.

As you clean up remember to save all the leaves, grass, weeds and flower stems which will make compost. Our soil needs this humus, so save every bit possible.

Tender plants may need some shade to prevent winter burn. Wrap or shade the southwest side of small mountainash, linden or oaks. Roses may be left until after Christmas and then use old evergreen tree boughs to shade them. Small white fir or white pine would benefit from a partial shade on the south side. Raspberries will need covering when they are dormant.

Everything will benefit from a mulch of peat, leafmold or well-rotted manure. In spring this may be cultivated into the soil and improve its texture.

With the active growing season drawing to a close, it is time to begin some of the necessary construction jobs—repair the fence, paint the gate, put in a new flagstone walk or build a fireplace.

Take time to wander around the parks and streets observing the plants that may still be in bloom and those that are beginning to show fall color. Put in your order for any of these which might add to the beauty of your garden.

Attend the lectures and classes arranged to help gardeners learn more about gardening. Look over the books in the library at Horticulture House and select some that you will want to buy for ready reference next year. Gardening is so much more fun if you know a little more about the growth and habits of the plants that you are handling.



November, 1949

25 Cents

The Green Thumb



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The Green Thumb

Vol. 6

NOVEMBER, 1949

No. 11

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PUTTING PLANTS TO BED FOR WINTER

Nothing gives a good nurseryman more pleasure than to see the plants that he has set in your yard growing vigorously, and nothing makes him sadder than to see his good plants unhappy and sickly because of neglect or improper care. Here are some of the things that good gardeners take care of at this time of year.

WATERING—Much winterkill in Colorado is caused by plants drying out. The ground around all plants should be soaked **thoroughly** before it freezes up.

MULCHING—After the soil is soaked a good mulch of peatmoss, leafmold or well rotted manure will help to keep this moisture in and will also prevent too sudden changes in temperature of the soil surface.

SHADING—A little shade to prevent our hot winter sun from drying out plants is often necessary. Thinbarked trees like Linden, Mountainash and hard Maple should be wrapped and partly tender trees like White Fir and White Pine should have a partial shade from lath or burlap. Broadleaf Evergreens such as Mahonia and Euonymus may be protected with evergreen boughs or other partial shade.

TRIMMING—Fast-growing plants like Chinese Elms and Pfitzer Junipers often need trimming back to prevent damage from heavy snows.

HILLING—Hybrid tea roses and some other plants might be protected with mounds of soil thrown up around their stems.

NOW IS THE TIME TO:

Move large trees with balls of earth, both evergreen and deciduous.
Remodel perennial beds if the ground is still not frozen.
Trim deciduous trees such as Elm, Linden, Ash and Honeylocust.
Build pools, platforms, walks, pergolas, and fences.
Apply a dormant spray for scale and certain other insects.
Transplant many hardy trees and shrubs bare root.

Consult your local nurseryman about these chores. Arrange for him to do all garden work that can be done at this time so that he may be able to give better service during the rush season next spring.

The Colorado Nurserymen's Ass'n

See September issue for list of members

IT'S NOT A HOME UNTIL IT'S PLANTED



Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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NOVEMBER SCHEDULE

- Nov. 2. Wednesday evening, Horticulture House, Class, "Why do We Trim Trees", Earl Sinnamon and George W. Kelly. All members welcome.
- Nov. 9. Wed. 7:45 p.m. Horticulture House, Class, "The Technique of Tree Trimming and Repair", Wm. Lucking and others.
- Nov. 10. Thurs. 8 p.m. Horticulture House. Rose Society.
- Nov. 11. Fri. 7:45 p.m. Horticulture House. Mrs. Kalmbach will tell us more about South America.
- Nov. 16. Wed. 7:45 p.m. Horticulture House, Class, "Trimming Shrubs and Hedges", George Carlson, D. W. Spangler and others.
- Nov. 23. Wed. 7:45 p.m. Horticulture House, Class, "Control of Plant Diseases and Insect Pests,"

Gordon Mickle and W. J. Henderson.

Nov. 25. Fri. 7:45 p.m. Varied Program by members of the Men's Garden Club. This is a yearly event always much worth while.

Nov. 30. Wed. 7:45 p.m. Horticulture House, Class, "New Developments in the Control of Diseases and Insect Pests of Trees." B. H. Wilford, Entomologist.

Mountain trips will be arranged on request. What is your favorite spot in November?



We were not trying to hide the identity of the pictures on pages 10, 11 and 12 of the October issue. These were from the grounds surrounding the new home of Mr. and Mrs. Frank McLister, of 445 Westwood Drive. It was just one of those cases of several people thinking that the other had done it. Sorry.

MOUNTAIN PEAT MOSS MAKES THE GOOD EARTH BETTER AS A MULCH

A generous covering of MOUNTAIN PEAT MOSS and SHEEP FERTILIZER placed on rock gardens, perennial and rose beds in fall will protect them from extreme cold and guard roots and young shoots from damage by alternating freezing and thawing of early spring. Do not remove in spring. Leave moss for summer mulch or weed control or work into soil as humus.

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LANDSCAPE USE OF ROCKS

THE accompanying pictures, and that on the front cover, show views from the garden of Mrs. Beulah Son in Golden, Colorado. Here is a good illustration of the various use of rocks in connection with the landscaping of a home. The location, on the side of a steep hill, lends itself well to the use of rocks and varying levels. Here the natural rocks are preserved and man-shaped rocks are used to give a civilized effect to the plantings.

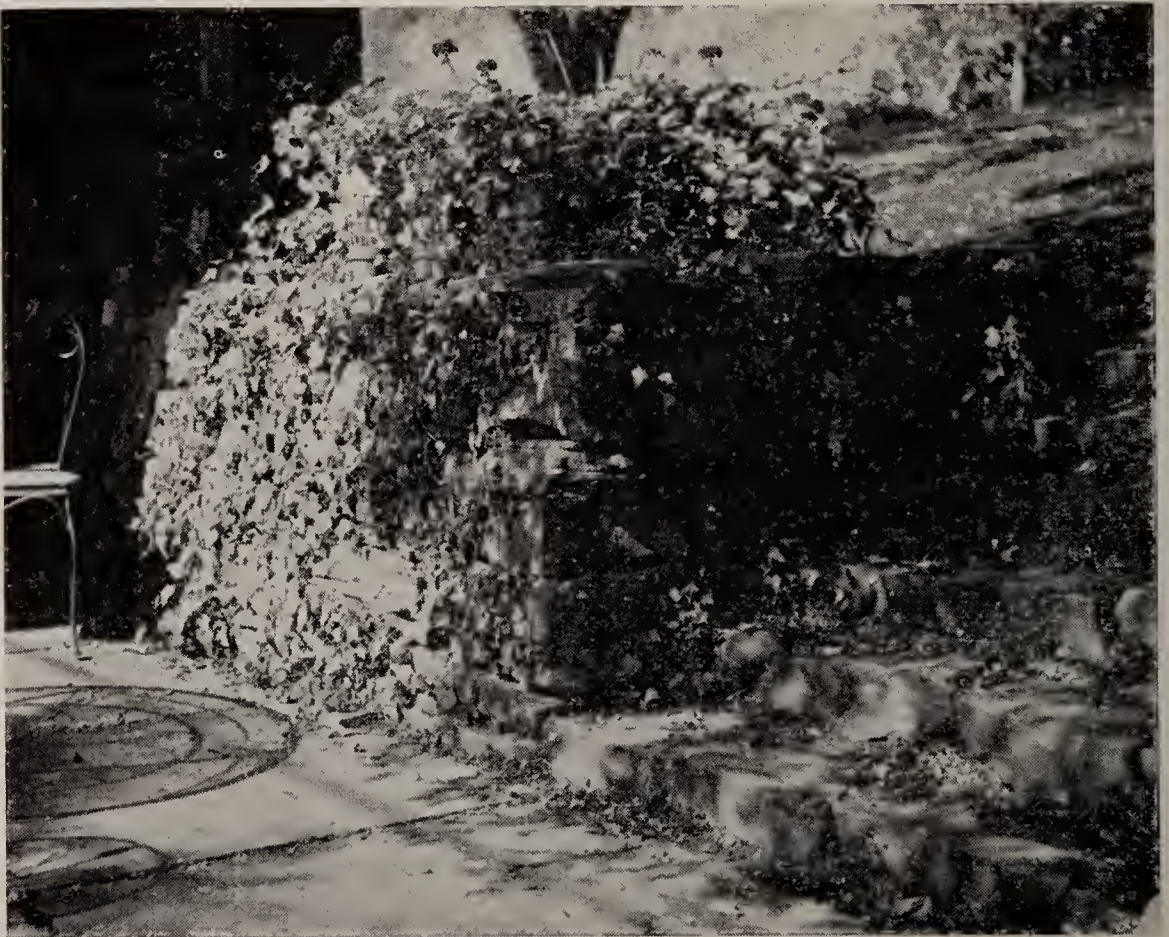
The picture at the bottom of the opposite page gives a general view from close inside the front gate. This shows the lines of the house carried out in adjoining formally constructed walls, the large group of natural rocks with their naturalistic plantings, and the semi-formal banks covered with rocks and planted with a variety of

interesting little plants. The large vase in the distance makes a nice contrast with the natural group of rocks.

The upper picture on the opposite page shows two levels, each designed for living. The upper might be the outdoor dining room and the lower the outdoor living room. Each nook is partly in shade and partly in sun at times throughout the day so that it may be occupied comfortably at any time.

The picture below shows the softening effect of ivy trailing over the formal walls adjoining the summer house. The picture on the front cover shows the attractive gateway, using a different type of rockwork. Adjoining the outdoor living room area is an extensive rose garden which does not show in the pictures.

Photos by Edgar E. Warren.







ROCKS AND POOLS IN A CITY GARDEN

DR. and Mrs. Kenneth C. Sawyer have developed a very interesting garden around their home at 165 High Street, Denver. Here is found a small rockery under the shade of large evergreen trees, constructed of the rare "Tufa" rock, a small pool in a nook of the rear garden, a charming series of rose and perennial beds and a long view along the south side of the house extending from sidewalk to alley.

The picture on the opposite page shows part of this interesting long view, the one below, the rocks, the upper view on the following page, the formal beds, and the lower picture the little pool. Every foot of this yard is planned to give the maximum

in garden satisfaction by the studied use of appropriate materials.

THE VICTOR RIES LECTURE

In spite of conflicting dates and bad weather, about 700 people attended the Victor Ries lecture at the Phipps Auditorium, Oct. 18. Mr. Ries delighted the audience with his excellent kodachromes and lively, informative lecture.

After all expenses were paid there were several hundred dollars left to go towards the expenses of the Association. Much credit is due the loyal members who did such a fine job in arranging this lecture, selling tickets and handling the publicity.

Photos by Edgar E. Warren.





IVIES

By CLAIRE NORTON

IN the history of house plants, none has so long endured in popularity as the ivy. But at no time during these many centuries has it been quite the favorite it is today.

Sometimes it seems as if the hybridizers were making a determined effort to outdo each other in the production of new varieties. An ivy collector can now count his plants by the dozen, and each will vary in some respects from its nearest companion.

Two reasons for the long continued popularity of this fine house plant are its decorative quality and its ease of culture. Manufacturers of novelty containers bear the ivy in mind in creating their wares. Without the complement of these green leaves and twining branches, modern decorative accessories are unfinished. They make the difference between a nice piece seen in a shop and that same piece as an essential motif in the decoration of a home.

As to ease of growing, here is one of the world's few plants that will do well in either soil or water. The masses of an ivy's white roots in a crystal clear ivy bowl or a delicately tinted window sill book end are almost as interesting as the foliage. When so grown the container is best placed near the glass so roots as well as leaves can enjoy the light.

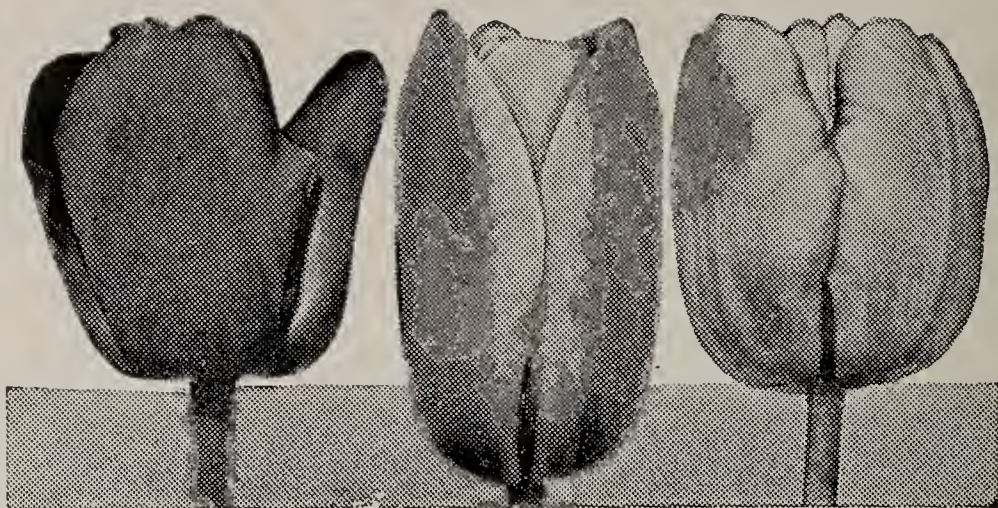
A well drained, loamy soil with humus or granulated peatmoss and a generous pinch of superphosphate added seems the ideal medium for growing potted ivies. Shifting to larger pots is rarely called for if an occasional watering with liquid fertilizer or a dissolved plant food tablet is provided.

Red spider is the ivy's worst enemy indoors, even more so than the fre-

quently mentioned scale. A rusty brown appearance to the leaves, with, in severe cases, a webby look to the undersurfaces, is a sure sign of red spider attack. The remedy is simple. Mix up a warm, but not hot, sudsy bath, using a pure soap, add a half-teaspoonful of 40% nicotine sulphate and a half-teaspoonful of pyrethrum extract to each gallon of water, and dunk the whole plant several times then rinse in clear water at the same temperature. Or better still, don't wait for red spider to attack, but take the plant to the kitchen sink and give it a bath every one to three months.

There are varieties among the newer introductions far more decorative than the old English ivy, or even its smaller counterpart with too much space between leaves and too much vine in evidence. Hahn's Self Branching started a new trend in ivy development and culture, that of a compact, well-filled, not too fast growing plant suited to small pots and hanging containers. There are now several of this type on the market, such as the Spearhead, Pin Oak, Maple Queen, Baby Leaf and the like. For a larger-leaved ivy, of close, compact habit and with considerable substance to its foliage, Sylvanian Beauty is an outstanding variety.

Fancy shape or variegation in the leaves makes ivies even more a decorative asset. The Fan Leaf Ivy is an example of this type. Webber's is a variety with a pretty, crinkly small leaf. Gold Dust is aptly named. Its foliage appears to have been lightly dusted with gold. There are places where the Large Leaved Variegated, the Little Leaf Variegated and Glacier Ivy fit even better than the all-green varieties into the decorative scheme.



HOME FORCED SPRING BULBS

By MYRTLE ROSS DAVIS

USUALLY the spring days in Colorado are so chilly and uncomfortable that it is difficult to stay out of doors long enough to really appreciate those early spring flowers which come into bloom so soon after the snow has melted.

I have found a way to get a great deal of enjoyment out of some of these flowers by planting the bulbs in pots in the fall. I place the pots in a cold dark closet in the fruit room in the basement where I water them often enough to keep them damp but

not wet. I do this so they will grow good roots before they start to grow tops.

After Christmas I bring them out of the closet and place them on the cool floor of the dimly lighted fruit room and they begin to grow tops. After about a month I bring them into the basement room which has a south exposure but I do not place them in the direct sunlight. In their natural environment out of doors in the spring months they are used to a cool atmosphere so I do not bring them into the warm living room until they are in full bloom.

I have had the best luck with crocuses, hyacinths, daffodils and tulips. The crocuses come so early and do so well that they are my greatest delight. I have had 25 flowers in bloom all at the same time from just six bulbs.

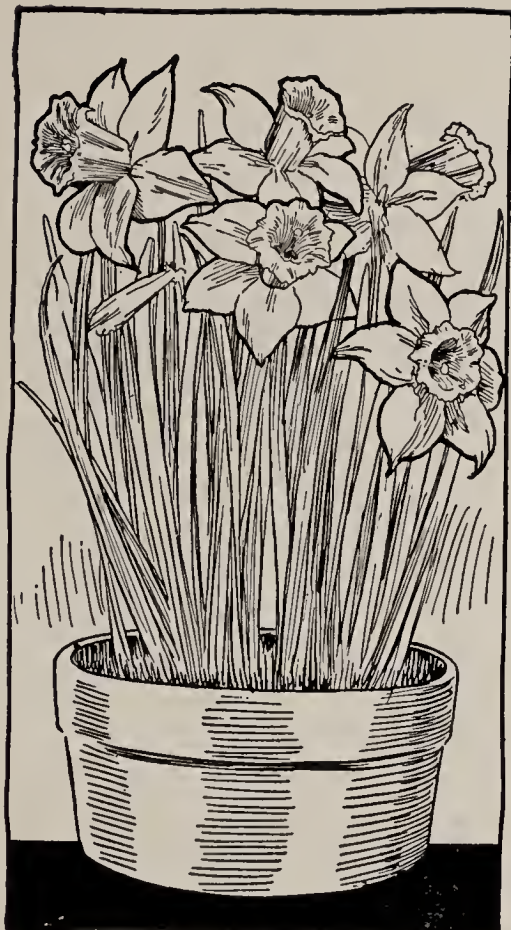
The pots must have good drainage in the bottom for water standing around the bulbs will rot them. I fill the pots with a good sandy loam with peat moss mixed in liberally. The bulbs are planted close to the surface with the tips of the bulbs protruding from the soil in all cases. This leaves plenty of room in the bottom



of the pot for good root growth during the fall and early winter in the dark closet.

Hyacinths should be kept in the dark closet until the flower bud is entirely out of the neck of the bulb. The flowers will blast and not develop if they are brought into the light too soon. Hyacinths can also be grown in water in hyacinth glasses but the water must be kept just up to and not around the bulb or they will rot. When grown in water they should be kept in the dark cool closet until the flower is entirely out of the neck of the bulb. This is very important.

In forcing daffodils, the bulbs should be soaked for several hours in water before planting in a slightly richer soil than for the other bulbs. They benefit from $\frac{1}{2}$ -teaspoonful of super-phosphate to the pot of soil. I have been very successful with the varieties Golden Harvest and the very common King Alfred. Other varieties recommended for forcing are Early



Perfection, Carlton, Helios, Magnificence, Rembrandt and Scarlet Elegance.

Generally the early varieties of tulips are the best for forcing. I have had the best luck with Advance and General DeWet. They are early short-stemmed and brilliant. Other varieties recommended are Brilliant Star, Apricot Yellow, Ibis, White Hawk, Crater, Kansas, and Golden Harvest.

The early doubles and the big frilly Parrot tulips are not recommended for forcing, although I have seen them forced with fair success.

During the months of February and March when we have our worst weather in Colorado and we are so anxious for spring to arrive, I get a great lift in spirit from a pot or two of these early spring flowers. They are a breath of spring in the dead of winter.



OUT OF THIS WORLD . . .

ROBERT F. TOPP, *San Diego State College*

PERHAPS no growing thing so satisfies man's seeking for beauty as does a flower . . . and no flower does this so strikingly as does the orchid. Fortunately, the science of orchid culture has progressed to a point where any of us possessing the ability to read and follow directions and the enthusiasm to motivate our reading and care of orchid plants can succeed in raising orchid blooms. True, orchid raising is not as simple as raising geraniums, as many would have you believe, yet it is no more complex than a multitude of avocations which thousands of people are enjoying every day.

In the writer's case he had grown nothing more difficult than back yard hollyhocks (which *persisted* in growing despite his efforts to hoe them

out) when he was initiated into the fascinations of orchid raising. This came about quite unintentionally through his wife's interest in the flowers. Having purchased an orchid plant for her, and having been coerced into constructing a Wardian case to provide suitable conditions of moisture and temperature for the plant, he found the occupation so interesting that together, now, they have acquired ten varieties of hybrid Cattleya orchids.

Cattleya orchids are the large, growing blooms with which most people are familiar. There are literally unknown numbers of other types of orchids some of which are easier to grow, some more difficult, but none of which is more rewarding than the royal Cattleya when it produces its lovely blooms. The thrill of seeing a fine Cattleya develop a sheath, and the bursting forth of the blooms somewhat as a beautiful moth leaves its cocoon, cannot be surpassed. Hybrid Cattleyas are often even more beautiful than Cattleya species, and although, slightly higher in cost, usually are more hardy and prolific than the species. We were fortunate in being able to contact a local florist who had a good supply of excellent hybrid orchid plants at reasonable prices. He not only provided the plants but patiently answered our innumerable questions to which we could readily have discovered answers in any of the many orchid books on the market.

The first plant we obtained was one of the most vigorous and beautiful of all our hybrids, the Gordon Highlander, a cross made several years ago. This hybrid produces large showy blooms two or three times a year. Other varieties followed (usually us-

Cattleya bowringiana. Photo from Mrs. James Waring.



ing birthdays as excuses for purchasing plants) until we are almost always enjoying a bloom, or looking forward to one bursting through its sheath.

The Wardian case referred to above is simply a glass case made out of windows acquired when an old home was being wrecked. Provision was made for a door in the front, a sliding glass opening in the top, and holes in the bottom for circulation of air. Any method of providing a similar glass case can be used just so there is room for the orchids and some method for circulating the air. Since the primary purpose of the case was to maintain desirable conditions of humidity and temperature, a tin tray was made for the bottom and this was kept partly filled with water. Temperature of the case was the same as the interior of the home, ranging from a cool of 45 degrees Fahrenheit during winter nights, to close to 100 degrees during the sunny summer days. We made certain that the moisture content of the air was high when the temperature was high, and low when the temperature was low. Orchids seem to benefit from drying out somewhat during the night so we set the door of the case ajar during most nights. Orchid pots were not set directly in the water but were placed on inverted flower pots so that they could drain freely.

It is probably advisable for the beginner to use an hygrometer at first to determine moisture content of the air, although this will not be necessary as experience is gained. Authorities believe that a humidity of 40 per cent during the night or on cloudy days, and 70 per cent during sunny days is desirable. Do not let these details of care frighten you; orchids have a considerable "range of error" and will bloom even though you make some

mistakes or cannot provide optimum conditions. Many people have been successful with a plant hanging in a corner of the kitchen by simply spraying it on frequent occasions.

During winter months we found it convenient to have the case in a south window. However, we moved it to an east window during the summer and observed no detrimental effects. We did discover through sad experience that direct rays of the sun on leaves of orchid plants will burn the leaves and cause that section which is injured to die. This happened to a *Leemanae* of ours which we had permitted the sun to burn and, we thought, surely to ruin, only to have it show two more beautiful and fragrant blooms in a few weeks. We eliminated any further possibility of burn by tacking a piece of old curtain material on the side toward the sun thus diffusing the rays sufficiently to prevent further trouble.

Watering plants requires a little judgment and practice, yet the mistakes we made did not seem to be serious enough to interfere with growth. We learned to water only when the osmundian moss in which the orchid was rooted was very dry and light brown in color. Since orchids in nature have their roots exposed to the air they must not be permitted to remain continuously damp. Watering only when dry and then giving them a good soaking (without getting water into the little shoots or leaves) seemed to work successfully with us.

If it so happens that orchid raising seems to challenge you, write to the various people who sell the plants or contact a grower in person; read a book or two from your local library . . . and be prepared to lose yourself in the most fascinating hobby of them all!



ROCK GARDEN SOLVES A PROBLEM

At Home of Mr. and Mrs. Frank Dimmick, 720 Pearl St.

By ROY E. WOODMAN

SELDOM does a similar area present so many problems in landscaping as did the building of this garden. We were confronted at first glance by a

This picture shows how the garage entrance is almost obscured by skillful planting. Photos by Chas. J. Ott.



dwelling with extreme horizontal lines, built precariously close to the top of a precipitous embankment and quite close to the street. Featured in the center was the garage entrance, flanked by concrete retaining walls. This was not an impressive picture.

The problems were: To soften the lines of the dwelling. To lessen the appearance of height by bringing the lower levels up and drawing the building closer to the ground with planting. To give the dwellers some semblance of privacy from the public view. To get protection from hot afternoon sun without too much height. To camouflage the garage entrance and drive and still leave it useful. To bring the maintenance of the area to a minimum cost and physical effort. To present a pleasing picture to the public.

ARMCHAIR GARDENING

By KATHRYN KALMBACH

NOW comes my favorite time of year, when I may again engage in my best-liked type of gardening—the armchair variety. And what a wealth of good reading lies ahead!

For you fellow readers who enjoy plant exploration I recommend "The Valley of Flowers" by Frank S. Smythe, published by W. W. Norton & Co., Inc., N. Y., 1929, at \$5.00. This is the story of four happy months spent amidst some of the noblest and most beautiful mountains of the world — the Himalayas. Mr. Smythe dedicates his book "to all who enjoy hills and the flowers that grow on hills". That includes a lot of us in Colorado. The sixteen color plates in the book will appeal to our mountain photographers as well as our plant lovers.

Having recently returned from a visit to that plant paradise, South America, I suppose it is natural to be enthusiastic about "The Green World of the Naturalist" by Victor Wolfgang von Hagen, published by Greenberg, N. Y., 1948, at \$5.00. South America was explored botanically long before our own country and in his book, von Hagen recounts the adventures of the early botanists from the sixteenth century to the present. The book contains selected writings of the plant explorers with biographical sketches by the author. To those of you who have enjoyed "South America Called Them" by the same author, this book is a "must have".

An author new to me, and whom I am delighted to meet, is Agnes Rothery. Her recently published book, "The Joyful Gardener" reflects what must be a charming personality. This is a book for pure enjoyment—

full of pleasant surprises, humor and sentiment. The chapter headings are intriguing and mystifying. For instance, a chapter on "Animals In The Garden", headed by a sketch of foxglove, turns out to be unexpectedly an account of the relative virtues (?) of Siamese cats, dogs, turtles, goats and peacocks! This chapter also contains a delightful description of fourteenth and fifteenth century tapestries! The chapter on "The Invisible Dimension" is so surprising that I will not spoil it for you by describing it here. This is a book you will want to read and give. As that time of year draws near when we are reminded on every side to "Shop Early", I can think of no better solution to the gift problem for the gardener, or for the person who "has everything", than Mrs. Rothery's charming book. The book is "giftly" looking in its dainty dust jacket, and is prettily illustrated by Lee Vitale. It is published by Dodd Mead and Co., N. Y., 1949, at \$4.00.



New Book on Wild Flowers

American Wild Flowers by Harold N. Moldenke. D. Van Nostrand Co., New York. 1949. \$6.95.

This excellent book by the Curator and Administrator of the Herbarium of New York Botanical Garden treats of 2050 species, varieties and named forms of native plants and naturalized exotics throughout North America.

The illustrations in color and in gravure are outstanding. Of the photographs in color twenty-eight are by Harold D. Roberts whose incomparable flower portraits are well known to flower lovers of the Rocky Mountain region.

Alice Wood.

A SHORT CATALOGUE OF ROCK GARDEN PLANTS

For Use in the Rocky Mountain Region

By HELEN FOWLFR

PRESENTING a list of plants for use in the rock garden brings up a matter of great importance—which plants to include and which to omit and why. It is easy to understand that the plants used should be dwarf and of a compact habit of growth. The very first Oriental gardens contained only evergreens and other shrubs; they simulated mountain scenery, as the true rock garden still does. Later, however, such plants were included as dwarf saxifragas, primulas,

sedums, alpine poppies, and trailing saponarias, with more and more as time went on. The shrubs were those of a hard, stunted, alpine aspect.

Evergreens give character, accent and variety in height to the rock garden, much depending on their varieties and their skillful placing—not dotting them about indiscriminately. To preserve a sense of scale they should be planted near nothing but very dwarf plants. One of the most

Well planted and maintained slope in the garden of Wa



effective of all dwarf shrubs is the hibernian Juniper (*J. hibernica compressa*), blue-grey, dense and slow-growing. *Cotoneaster horizontalis*, of trailing habit, is useful for leading from a possible planting of the stiffer-growing evergreens above, to the lower area where we might find Harebells, *Tiarella cordifolia*, dwarf Iris, *Sempervivums* and the like.

The true alpine garden is one where plants native only to the Alps are grown, while in the rock garden, copied from alpine zone conditions, we have mountain and other plants from the whole temperate world. Our copy, then, is from places where plants have a short period, in cool places, with plenty of water in the growing and blooming seasons. Seen

at their best, in grassy spaces, you will find the little gems, snowflakes and snowdrops, the Dog-tooth violets and the windflowers—anemones of the *pulsatilla* group. Close to the rocks and decorated by them, the species Tulips, the wild kinds, of easy cultivation, such as *TT. Fosteriana*, *Kaufmanniana*, *Clusiana* and many more are the only kinds suited to rock gardens, where many like to remain for years. Here and there in like situations we might give place to *Trilliums*, *Mertensia virginica*, whose pink touches of bloom give way to blue, *Crocus*, *Narcissus*, *Scilla siberica* and *Pushkinia*.

Liberty Bailey should be authority enough to settle another question. In upholding the use of perennials for

erson at 3431 Wadsworth. Photo by Edgar E. Warren.



rock gardens he says "Most materials are of this type; the shortness of the growing season precluding the possibility of the full development of an annual." It is not necessary to feel that annual plants must be used to refurnish spaces left vacant by dormant bulbs, for many nurserymen, today, are growing potted perennials, which are so easy to slip into these vacant places. The whole galaxy of experts on just this subject, agrees that bedding plants such as petunias, lantanas, heliotrope and the like are absolutely taboo and such commonplace varieties as portulaca, sweet alyssum should be resolutely avoided. Richardson Wright says, "However, it is *your* garden." We do know this, that if the wrong plant material is used, the rock garden loses its air of distinction and becomes merely a flower garden in which there are rocks.

Keep the Plants Safe

In the spring push back into the ground any plants the frost may have heaved out and work in a little leaf mold. Lack of moisture at all times, of course, harms the plants but in the month of May especially, could cause permanent injury, when the plants are in active growth. I do not know just what to say about weeding—a hoe will never do; a small hand

cultivator might be used to loosen the surface soil — perhaps, if you love your garden enough, you will weed it by hand. When it is time to cut back plants that have finished blooming, allow sufficient foliage to remain to permit of continued breathing and feeding thru the pores of the leaves.

It is so easy in a rock garden for the more exuberant plants to crowd out the weaker, but sometimes choicer ones, the Sedums offend greatly in this regard.

A pool cannot always be managed in connection with a rock garden but if it can the possibilities of beautiful gardening are endless. Allow the *Lysimachia* to trail right into the water. *Lythrum*, with flowing liquid purple, *Siberian Iris* in both shades of blue and white and *Iris ochroleuca*, that lovely white and yellow-ivory white, the tall *Thalictrum* and the noble *Gunnera*, if given enough space to itself, make attractive pictures, if used in masses near the water's edge. Not too many admire the hard-yellow, levelled-topped Tansy (*Achillea filipendulina*) but it is luxuriant near water.

Many helpful books are to be found in the library at Horticulture House. They will aid in the way of using old species and varieties and suggesting new.

ROCK GARDEN PLANTS FOR USE IN SUN AND SHADE

THE LIST THAT FOLLOWS IS FOR SUN

These lists attached do not aim at being complete. They are to assist the average rock gardener in planting a garden in "The Rocky Mountain Empire."

Name	Color of Flowers	Height	Time of Flowering
<i>Achillea argentea</i>	White	4"	Summer
<i>Achillea umbellata</i>	White	4"	June
<i>Achillea tomentosa</i>	Yellow	9"	June-September
<i>Aethionema</i> , var. sp.....	Pink	1'	Summer
<i>Ajuga</i> , vars., sp.....	Blue	4-5"	Spring
<i>Alyssum</i> , var., sp.....	Yellow	6"	Spring
<i>Androsace</i> , var., sp.....	White and Rose.....	3-6"	Spring and Summer
<i>Arabis</i> , var.	White	4"	Spring
<i>Arenaria montana</i>	White	6"	Spring and Summer

Name	Color of Flowers	Height	Time of Flowering
Armeria, vars., sp.....	Rose and White.....	6-12"	Spring and Summer
Aster alpinus	Blue	9"	Summer and Fall
Ceratostigma plum.	Blue	8"	Autumn
Campanula, dwarf	White and Blue.....	3-12"	Spring and Summer
Cerastium tomentosum	White	6"	Spring
Corydalis vars.	White	6"	Spring
Dianthus, Alpine pinks.....	White to Rose.....	5-12"	Spring and Summer
Epimedium mac.	Yellow	Low	Spring
Erigeron villarsi	Violet	12"	Summer
Erinus alpinus	Purple	Low	April to June
Gypsophila, dwarf	White to Pink.....	6-12"	Summer
Hedera, var.	For evergreen foliage..	6-8"	
Helianthemum, vars.	Various	6-8"	Spring and Summer
Hemerocallis, dwarf	Yellow	Med.	Spring
Iberis, vars.	White	6"	Summer
Iris, dwarf bearded.....	Various	6-15"	Spring and Summer
Linum flavum	Yellow	12"	Summer
Leontopodium alpinum	White	6"	Summer and Fall
Nepeta mussini	Blue	12"	Summer and Fall
Papaver alpinum	Various	6"	Spring
Papaver nudicaule	Various	8"	All Summer
Phlox subulata	Various	Low	Spring
Saponaria ocymoides	Red	Creeping	Summer
Silene, var., sp.....	White and Red.....	5-15"	Summer and Fall
Thymus, vars., sp.....	Various	Dwarf	Summer
Tiarella cordifolia	White	6-8"	Early Summer
Tunica saxifraga	Pinkish White	3-5"	Summer
Veronica, var., sp.....	Blue	6-14"	Summer

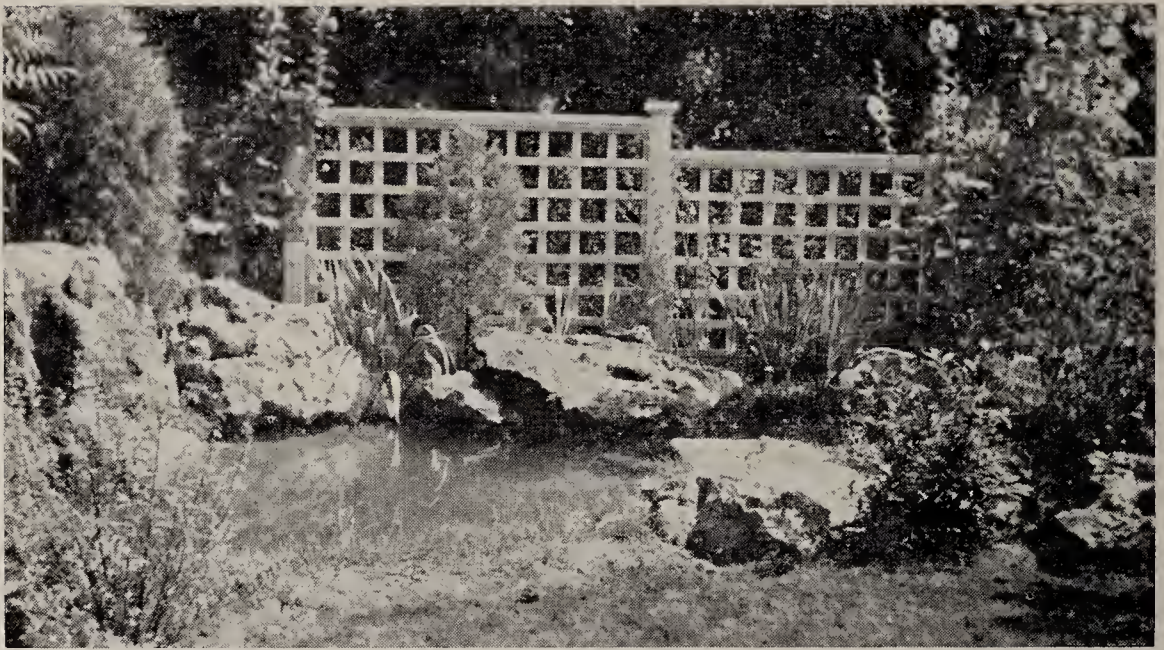
Additional—Geum trifolium, Arabis, Viola, Delphinium chinense, Incarvillea delavayi, Heuchera, Teucrium, Prunella grandiflora, and of special beauty, Geranium subcaulescens splendens.

ROCK PLANTS FOR SHADY SITUATIONS

Name	Color of Flowers	Height	Time of Flowering
Aconitum anthora	Yellowish White	12-14"	Summer
Anchusa myosotidiflora	Blue	12"	Summer
Anemone alpina	White	14-16"	Summer
Anemone sylvestris	White	12"	Spring
Aquilegia glandulosa	Blue and White.....	12"	Early Summer
Aquilegia coerulea	Blue and White.....	15"	Summer
Ajuga	Blue	4-5"	Spring
Arenaria balearica	White	2-4"	Summer
Dodocatheon sp.	White to Purple.....	12"	Spring and Summer
Epimedium, vars. cp.....	Ornamental foliage ...	6-12"	
Erinus, var., sp.....	White and Rose.....	3"	Spring and Summer
Funkia, vars.	Lavender and White..	8-14"	Late Summer
Helleborus niger	White	12"	Winter
Iris cristata	Blue	4"	Spring
Linaria cymbalaria	Lilac	3"	Summer
Polemonium reptans	Blue	7"	Spring
Primula, various forms.....		6-9"	Spring
Saxifraga, vars.	Various	12-18"	Spring and Summer
Sedum spurium	Rose-pink	3"	Summer
Stachys lanata	Pink	12"	Summer
Thalictrum minus	Ornamental foliage ...	6-12"	
Thalictrum adiantifolium	Ornamental foliage ...	6-12"	

BULBS FOR THE ROCK GARDEN

Grape Hyacinths, Daffodils, Hyacinths, Crocuses, Snowdrops, Snowflakes, Tulip species, Trilliums and Tenuifolium Lilies.



BUILDING A POOL

By GEORGE W. KELLY

BUILDING a pool is a hard and technical job, but anyone with a little ingenuity and willingness to work may do so if they will make the plans and preparations carefully. Whether you build your own pool or hire the work done it is well to know the most efficient method of construction. There are two general types of pools; the formal with vertical sides, and the informal with sloping sides. Each type requires a very different method of construction.

The use, surroundings and location would govern very largely the size and type of pool that would best

fit into the general plan. If it was desired to have fish or lilies in the pool it should be at least two feet deep in the deepest part, but if reflection from a water surface was the only objective, a foot would be deep enough. Three or four feet might not be too deep if it was desirable to keep the fish or lilies in the pool over winter.

The pool should be of a size so that it would be in scale with the surroundings and neither dominate too much nor look too insignificant. If in formal surroundings it might well be of formal design to fit, but if space permitted an informal setting, it could be

Informal pool at Crown Hill Cemetery, just completed; filled with water, showing no raw cement.

*Picture on opposite page from garden of John G. Gates, 300 So. York.
Photo by C. Earl Davis.*







planned to imitate a natural pool. The surroundings and trim should be planned to fit together so that all made a harmonious and convincing picture. A pool might be designed to fit in with a rockery or a platform. No two situations would call for just the same plan.

An informal pool should be located in a spot which might naturally contain a pool, this usually being the lowest place on the grounds. There should be room to thoroughly screen out this spot from distracting views which might interfere with the illusion that this was a little bit of nature transplanted into the corner of the city lot. Native plants and native stone arranged as they originally "grew" would help the general effect. The trim of a formal pool might be of the same material as the surrounding structures so that it would give the appearance of "belonging".

When the type and size of pool are determined, there should be a carefully drawn plan showing the exact location and dimensions. After the location is staked out some arrangement should be made for draining the pool. Sometimes this might be a tile to the street or alley, sometimes a connection to a sewer line or provision made for a sump filled with rubble to hold the drainage. Sometimes provision may be made for syphoning out the water through a garden hose if a low spot is nearby. This provision for easily draining the pool is very important unless it is very small.

Informal Type

If an informal type pool is desired the excavation may be made and contours changed to suit, then 4 to 6 inches more excavated from sides and bottom to allow for the thickness of the concrete walls. With this informal type there should be no sharp

Picture on opposite page in the garden of Mr. and Mrs. John Evans. Photo by C. Earl Davis.



Tiny informal pool built for Mrs. Henry Brooks.

corners or vertical walls, as the concrete is "plastered" in rather than being poured. In heavy clay soil it is good practice to dig another 4 to 6 inches deeper and tamp in a "cushion" layer of gravel or cinders. This allows for some expansion and contraction of the clay from moisture or frost without danger of cracking the pool.

First arrange for the drain pipe with threaded connection to be set flush with the bottom of the lowest spot and into which an upright "automatic" drain pipe can be screwed. The top levels should be established and stakes set every couple of feet. Several permanent level stakes should be set farther back to check by later.

One of the formal pools on estate of J. Churchill Owen.





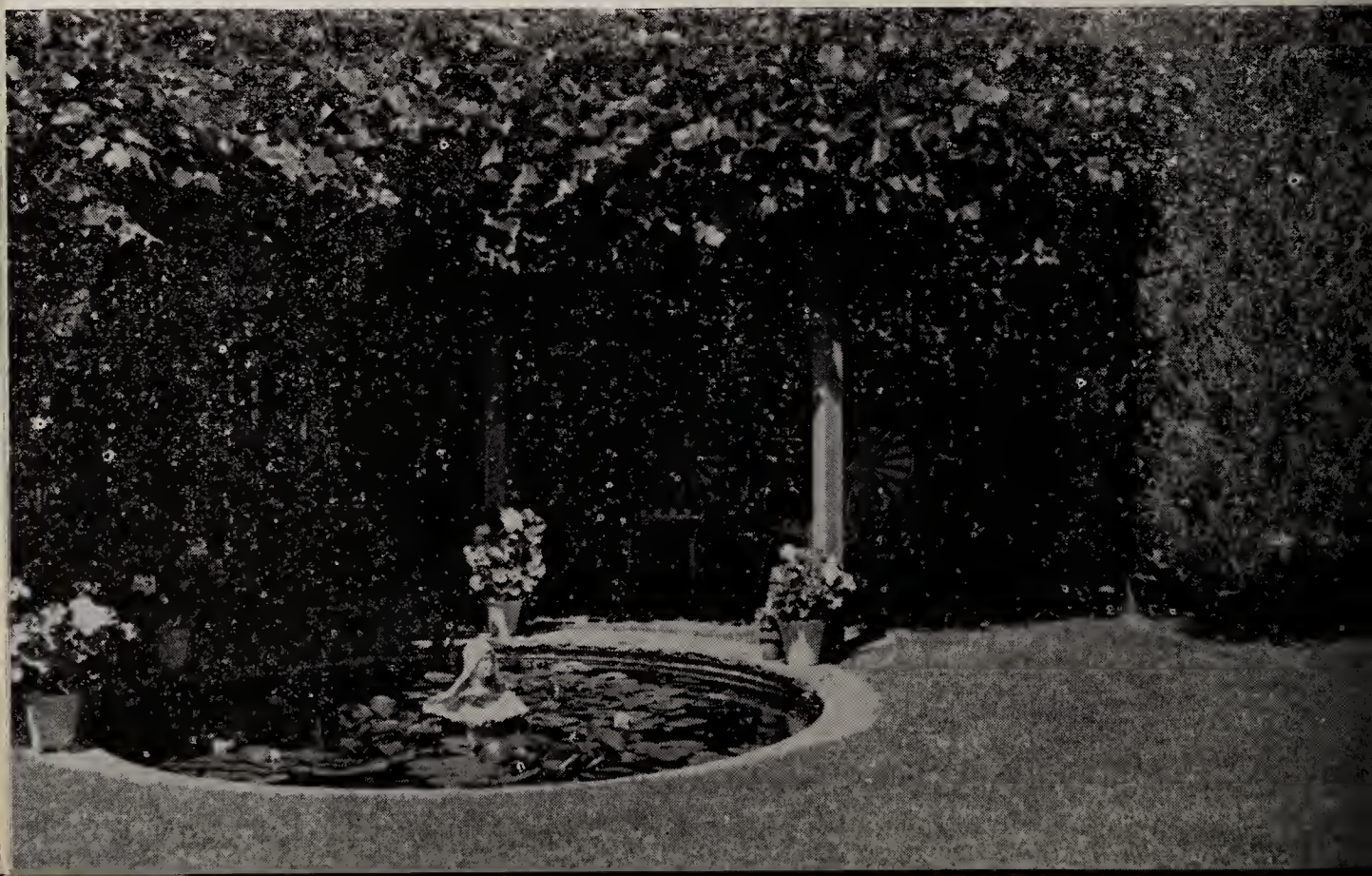
Pools at Crown Hill Cemetery. Left, Formal pool just completed. Right, Lilies and reflections in informal pool.

for small pools or heavy fencing for larger pools should be cut and fitted. Make provision to have the concrete mixed as fast as wanted, then throw in about an inch of the rough concrete all over the bottom and sides. Next, carefully place the reinforcing material and drain pipe and begin to fill in the other 2 or 3 inches of rough concrete over the reinforcing material. This may be a rather rough mixture of about 1 to 6 and may be roughly shaped over the bottom and sides with shovel and trowel. Then plaster on from $\frac{1}{2}$ to 1 inch of finer concrete mixed about 1 to 4 with waterproof cement. Very carefully trowel this out to the shape desired. If a really

informal effect is wanted arrange to make a shoulder on the top that can be covered with sod and set in any rocks desirable on the edge so that they do not extend below the water-line. Rocks inserted in the walls of a pool are likely to settle out of place and cause cracks which will not allow the water level in the pool to be maintained. Be very careful in finishing the top of the pool to have it level as you will not be able to fool the water later if it is higher on one side.

The next day after the main part of the pool is made it would be worth while to paint the whole surface with a paste made of waterproof cement

Formal pool in Chas. Stern garden, 161 Vine.



and water to the proper consistency. Reinforcing material of chicken wire to handle with a brush. In later years, if cracks appear, they may be filled with this same mixture.

As soon as the concrete has set a little it is well to fill the pool and let it "cure" under water. Afterwards drain and fill several times before putting in fish or plants.

Formal Type

If a formal type of pool is wanted, a form at least for the inside, must be carefully and accurately made. Often the natural soil will do for an outside form. The hole should be dug from 4 to 6 inches deeper and larger than

the designed finished size. Reinforcing material should be carefully cut and fit. This reinforcing is more important in formal pools than in informal ones. A large pool might require many regular reinforcing rods so that it will hold together as a unit and not form cracks if the ground around it should sink later. The same preparations should be made for draining as with the informal type of pool and is even more important because pools with formal, vertical walls will not withstand the pressure of ice as well as sloping sides.

When all preparations have been made, pour the floor to the desired

Continued on Page 29

Informal pool in garden of Frank Seeleman, Arvada Heights.



PLANT PORTRAITS

The Cotoneasters

By FRANK RICHARD

A FAMILY deserving greater appreciation, the cotoneasters (pronounced koh-toh-ne-as'ter) include shrubs from one to eight feet tall, outstanding for interesting habit, good foliage and autumn color and especially valuable for their great crops of pink, red or black berries.

Cotoneasters are sun-loving; none will stand wet, shady places. They prefer light, well-drained soils and grow to perfection in sandy to gravelly loams well supplied with humus but will do very nicely in most any good garden soil. Pot-grown plants are sure to establish and are easily planted any time throughout the growing season. Bare-root planting, particularly following long-distance shipment, is not always successful, except with *C. acutifolia* which is usually handled bare root either spring or fall, while completely dormant and again for a short time after new leaves have grown beyond the "mouse ear" stage.

Unfortunately they are subject to scale, and it's too late now to do much about scale this year, but scale is easily cleaned up with a dormant spray of miscible oil. Sometimes the common cherry slug is a pest but one application of arsenate of lead (1 tbsp. per gal water) controls Mr. Slug.

Most cotoneasters are useful in the border, with *C. adpressa* reserved for prominent places of its own in formal design. The iron-clad *C. acutifolia* makes a wonderful sheared hedge and is hardiest of all, dependable in Wyoming as well as Colorado.

The Creeping Cotoneaster, *C. adpressa*, is an excellent small accent shrub growing in a low dome-shaped

mound to 18 inches tall and spreading to four feet. Its sparkling glossy foliage is beautifully patterned on intricately branched recurving twigs in herringbone fashion and the lavish display of brilliant red berries all through autumn contrasts beautifully with its deep-toned autumn color. *C. adpressa praecox* is a slightly more robust growing form.

The Cranberry Cotoneaster (*C. apiculata*) grows taller and less spreading than the preceding species, with more open habit, larger leaves, and the biggest, reddest berries of all.

The Sungari Redbead Cotoneaster (*C. racemiflora soongorica*) grows five to six feet tall in irregularly spreading habit, with markedly two-ranked branchlets forming fan-like sprays of gray-green foliage. Its white flowers are larger than the inconspicuous bloom of all other species but its main show comes in autumn when laden with great crops of dusky red berries. Winter dieback hit this one hard in Fort Collins twice in six years and it is not recommended for severe conditions.

The European Cotoneaster (*C. integerrima*) is hardiest of the red-fruited sorts, with wand-like arching canes ascending to six feet. Foliage is bluish gray-green and the berries are at their best in August and September in beautiful strands of unusual smoky deep rose color.

Best known of the clan is the Peking Cotoneaster (*C. acutifolia*), growing six to seven feet tall with clean, glossy, dark green foliage that assumes fine orange and red Autumn color. Heavy crops of shining jet black berries persist all winter, vanishing in a fluttering half-hour av-

alanche of robins or bluebirds during an April snow. The Peking Cotoneaster takes shearing well and easily merits top-bracket in the 4- to 6-foot range of deciduous formal hedges.

Diel's Cotoneaster (*C. dielsiana*) is of light and airy habit, to six feet tall. Its branches are slender and arching, autumn color dark crimson. Small coral red berries are studded in greatest profusion down to the bases of the main branches.

Glossy Cotoneaster (*C. foveolata*) is a big, husky, black-fruited variety to 8 feet tall with better (scarlet and orange), and later, autumn color than *C. acutifolia*.

BUILDING A POOL

Continued from Page 27

depth, including the reinforcing material and allowing some of this material to extend up to connect the walls with the floor securely. When the floor is

leveled and finished, lower the forms for the sides and pour this space around the reinforcing material.

Finish the top carefully or apply the curbing. Exact level is even more important here. When the concrete has safely set in 10 to 20 hours, remove the forms and give the whole surface a plastering of 1-4 waterproof concrete. This will fill all irregularities. After another day give a painting of cement and water or several days later apply a pool paint in any desired color.

It does not pay to skimp in the use of cement or reinforcing in constructing a pool, for a pool that leaks can be more bother than it is worth. We should aim to use more water in our landscape plans for this naturally arid country.

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The Webber Home at Broadview.

M. J. WEBBER BOTANICAL RESERVE

ANOTHER botanical reserve has been added to the series started a couple of years ago. This includes the property known as the Broadview Nursery operated by Mr. and Mrs. M. J. Webber. It is located $3\frac{1}{4}$ miles northwest of Arvada on Arapahoe Road just north of the Ralston Road.

Some apple trees are still bearing on this place which were planted by the original homesteader in 1865. The Webbers came here in 1906, built a fine house and started a nursery. A combination of soil, water, location and inherent ability (green thumbs) have enabled them to grow many plants usually considered impossible in this area. Many species of Viburnums, Oaks, Lindens and peonies are growing here, and individual speci-

mens of hundreds of other unusual or common plants.

This association is cooperating with the Webbers and the Colorado Federation of Garden Clubs in establishing this site as a botanical reserve where all plant lovers may come to study plants. The Webbers will continue to operate their nursery as previously but will take time in so far as possible to show interested people where to find the various specimens. The Colorado Federation of Garden Clubs will provide for labeling the plants and the Colorado Forestry and Horticulture Association will provide the marker signs and suitable publicity.

Previously established reserves include three near Colorado Springs and one near Stapleton Drive.

AUCTION A SUCCESS

DAMP weather did not dampen the spirits of the group who attended the gardener's auction which this association held Saturday afternoon, October 8th.

City officials had consented to our holding this sale in the Greek Theatre at Civic Center, Clair Robinson and John Swingle acted as auctioneers and many volunteers, including Earl Sinamon, Dick Bosworth, Dick Osborne, Philip Earhart, Mrs. Swingle and Miss Heminway helped handle the goods and collections. Bidding was lively and many items brought good prices, while there were plenty of bargains for everyone. About \$500.00 was net from the sales, and gifts boosted this to around \$850.00. This amount is about sufficient to balance our budget for the year.

Everyone cooperated nicely to make this event a grand success and all felt that it was a most worthwhile experiment which should be repeated.

Below is the list of donors who made this sale possible.

Reinbold, W. H., Decorator, Garden Tools
 Roberts Nursery, 'Mums
 Rocky Mountain Seed Company, Electric hedge trimmer
 Rocky Mountain Nursery, Colorado Junipers
 Associated Forestry & Landscape Co., Assortment of tools
 Alameda Nursery, Coffee, doughnuts, bulbs, tools
 Amidon's Cash Nursery, Low Junipers
 Agoston, G. J., Lawn & Garden Specialist, Lawn Sprinkler
 Barteldes Seed Co., Lawn Mower
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 Green Bowers Nursery, Potted Roses
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 Landscape Service Company, Junipers, spray job
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 Long's Gardens, Boulder, Assorted Iris
 Marshall's Nursery, Spruce, Mahonia
 McCoy & Jensen, Fertilizer
 More, Robert E., "Colorado Evergreens", Spruce, Yew, Hemlock
 Nagel, John, Cushion 'Mums
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 Northern Nursery, Potted and cut 'Mums, Mugho Pines
 M. Walter Pesman, "Meet the Natives", Hackberry tree
 J. Frank Quist, Mt. Arbor Nurseries, Cash
 Richard's Gardens, Ft. Collins, Succulents and Climbing Roses
 Rose Bowl Garden Club, Succulents and perennials
 Shodow Valley Gardens, Ferns and house plants
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 Simpson Seed Company, Yard cart
 South Denver Evergreen Nursery, Pinon Pine
 Swingle Tree Surgery, Spray jobs
 Tolleson's Nursery, Hackberry trees
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 Tower Nursery, Evergreens, 'Mums
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 Woodman, Roy, Nurseries, Low Junipers
 Woolworth Company, Vermiculite
 Yeggy, Mrs. R. A., Perennials

JOHN NASH OTT COMING AGAIN

The program committee have arranged for the showing of Mr. Ott's new time-lapse picture, "Our Changing World," at a date late in February. Everyone who saw his picture last year, "Plants in Action," will be anxious to see his new and greater picture. This amazing picture shows scenes from many parts of the world.

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NOVEMBER GARDENING

MOST of our struggle with insects and weeds is over for the season, but there are still a few things that we should do.

As soon as deciduous trees are dormant (have dropped their leaves) we may give them any necessary dormant sprays such as lime-sulphur or miscible oil. Oil may damage evergreens and lime-sulphur may stain concrete or wood, so both should be applied by experts.

Not all the weeds are annuals. Sprouts of Chinese Elm and Boxelder are likely to come up all over the garden and grow to good size right under our eyes, in the protection of a shrub or perennial. Hunt these up and get rid of them before they seriously damage better plants. Large trees which are growing too close together or are in poor health may also be considered as weeds, and now is a good time to get rid of them. The longer these unnecessary trees are left in, the larger they will grow and the more it will cost to remove them.

Trimming may be started now on most trees. Maples, Birch and Walnut are more safely trimmed when they are in leaf. Some necessary trimming may now be done on shrubs, but the majority of work on these plants should have been done right after they were through blooming. This does not restrict the bloom for the following year as much as when trimmed later.

All good gardeners will now take time to do their book work indoors: records of last year's successes and failures, suggestions for next year's experiments, orders for plants, plans for new developments and remodelling jobs. Now is a good time to study some of those new books that tell of others' experiments and experiences with plants.

Plan to attend some of the classes now in progress at Horticulture House on Wednesday evenings. These are planned especially for commercial gardeners, but any one will receive much benefit from them. The only requirement is that you be a member of this Association.

If you cannot come to these classes ask us about arranging talks, classes or demonstrations in your community. Let us help you.

Picture on back cover shows the very effective use of rocks and water in the John Gates garden at 300 S. York.



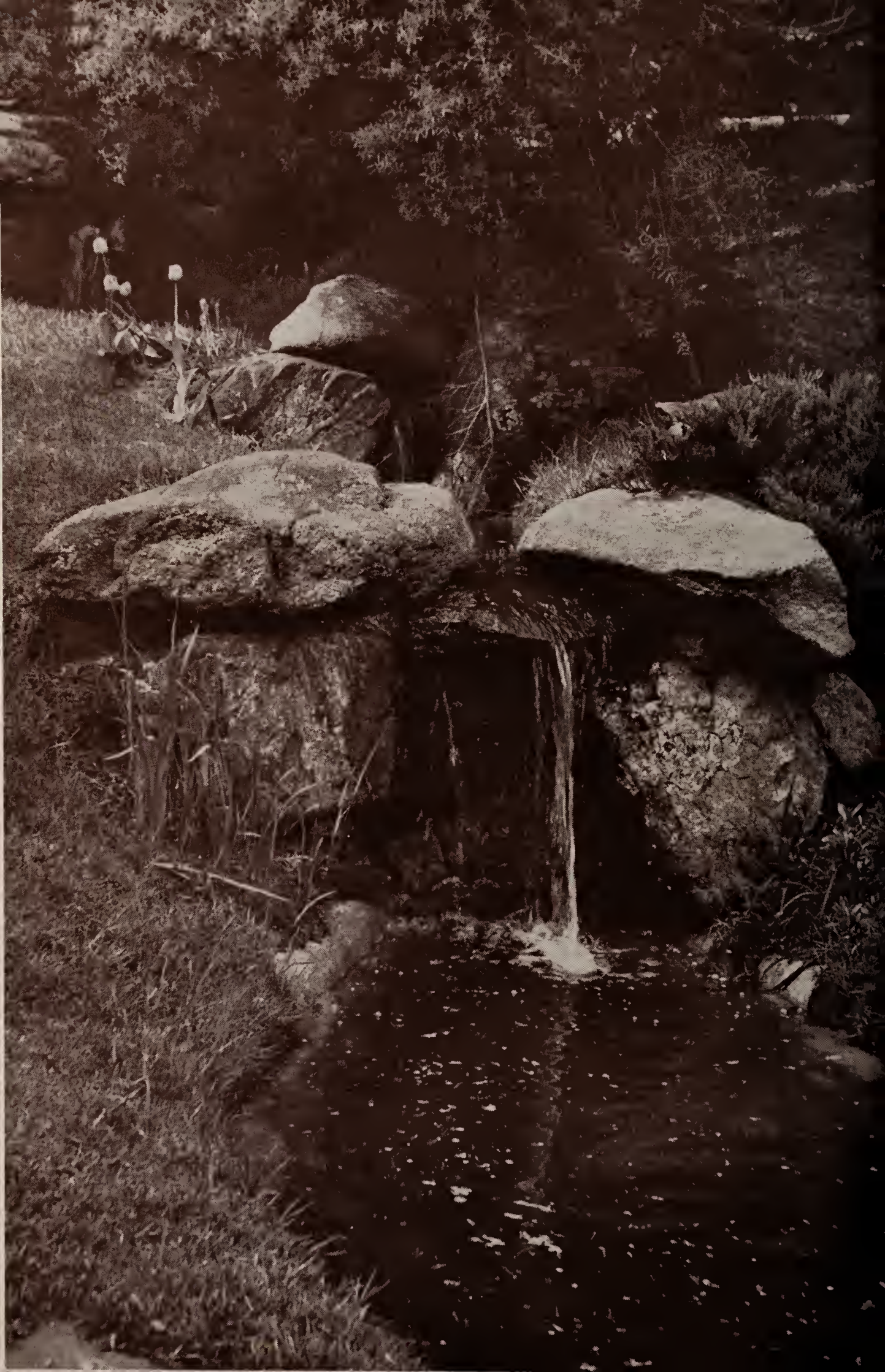
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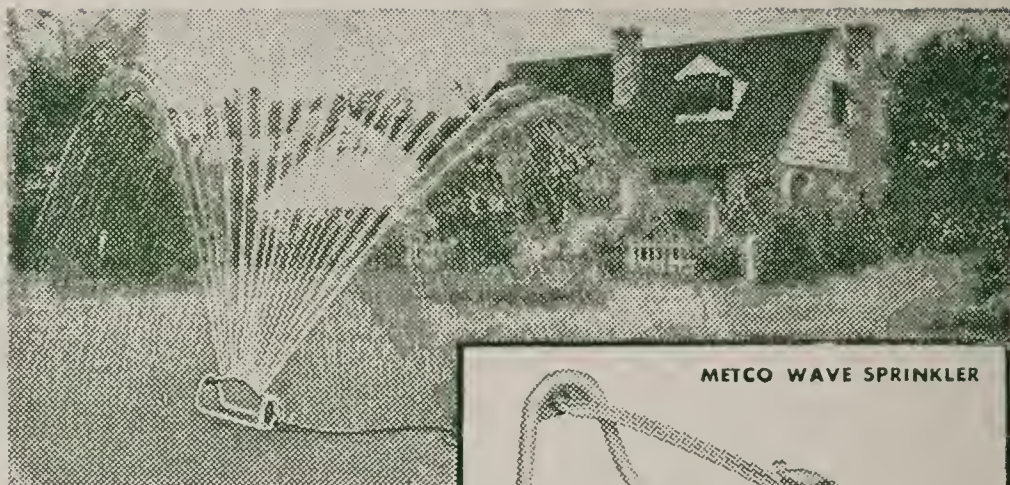
The Green Thumb

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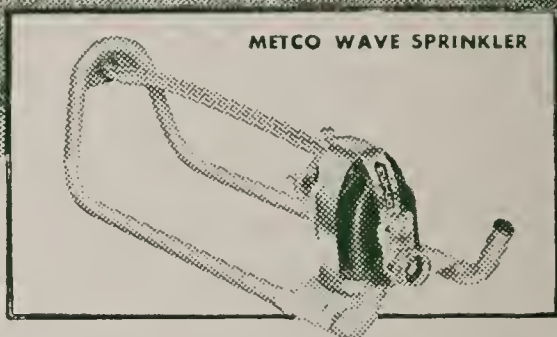


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- ☆ Visitors welcome at any time. Come in to see our decorations. Bring along your ideas and we will help you work them out.

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Association
may use
for other
good
purposes.



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The Green Thumb

Vol. 6

DECEMBER, 1949

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An Ideal Christmas Gift

Nothing you could select would give greater or more lasting pleasure than a fine shade tree, an evergreen, a rose bush or some other living, lasting outdoor plant.

Nothing could be more appreciated by a new home owner than a credit memorandum for a tree or a complete planting, to be installed, at the proper time, by the nursery of your choice.

Most members of The Colorado Nurserymen's Association issue "GIFT CERTIFICATES" redeemable anywhere in the U. S. which you may purchase for any amount from \$5.00 up. Watch for that smile of pleasure that is sure to light up the face of anyone lucky enough to receive one on Christmas eve or morning.

It Still Isn't Too Late

To have an outdoor Christmas tree planted on your grounds so that you may add your bit to the festive occasion by decorating it with colored lights.

ALL COLORADO NURSERYMEN'S ASSOCIATION MEMBERS

Extend to "THE GREEN THUMB," its Editors and all its readers their sincere wish for a

A Merry, Merry Christmas and A Happy New Year

Let's go forward together in 1950 with plans for making our homes, our cities and our state more beautiful and livable.

REMEMBER—

It's Not a Home 'Til It's Planted

See the September issue of "THE GREEN THUMB"
for a list of members of the

COLORADO NURSERYMEN'S ASSOCIATION



Colorado Forestry and Horticulture Association

Organized in 1884

"To preserve the natural beauty of Colorado; to protect the forests; to encourage proper maintenance and additional planting of trees, shrubs and gardens; to make available correct information regarding forestry, horticultural practices and plants best suited to the climate; and to coordinate the knowledge and experience of foresters, horticulturists and gardeners for their mutual benefit."

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DECEMBER SCHEDULE

Dec. 2. Fri. 7:45 p.m. Horticulture House. Robert E. More will tell of Arboretums that he visited last fall in the East. Illustrated with many kodachromes. If you are interested in an arboretum for Colorado come and see how other communities have done it.

Dec. 4. Sun. Leave Horticulture House 8 a.m. Drive to Tarryall Mountains to see the Bighorn sheep which are down at lower levels at this time of year. Bring lunch and register several days previously.

Dec. 7. Wed. 7:45 pm. Horticulture House. Regular class, subject, "Soils, Fertilizers and Mulches." Conducted by Chas. Drage, Extension Horticulturist of Colorado A. & M. College.

Dec. 8. Thurs. 8 p.m. Horticulture House. Rose Society program.

Dec. 14. Wed. 7:45 p.m. Horticulture House. Regular class, subject, "Watering Methods in Colorado," by panel of experts.

Dec. 16. Fri. 10:30 a.m. Horticulture House. "Christmas Arrangements." A demonstration by Mrs. Earl Davis, emphasizing native materials.



ANOTHER ROADSIDE PARK STARTED

As this issue goes to press we are happy to announce that work is starting on the development of another roadside park on highway 40 about 13 miles east of Denver. The Civic Garden Club of Denver is sponsoring this work with the cooperation of the State Highway Department, the Blue Star Memorial Highway committee and other garden clubs. This is a good example for other groups to follow.

"Northern Colorado's Garden Center"

Now showing unusually artistic holiday centerpieces and corsages, original door and mantel decorations. Heavily berried English holly, fresh mistletoe, decorated or plain wreaths and roping and grave blankets. Christmas tree lights and ornaments. Gifts galore to make gardening and outdoor living less work and more fun.

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Gift Suggestions

Beautiful CANARIES in full song.

Other items for attractive
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Native Christmas Greens

CHRISTMAS has been for many years a time of celebration. The past year's work is about at an end, the harvests are in and snow usually covers the ground preventing further outside work. Before it is time to start the plans for the next year's endeavors is this time for good will and enjoyment. Peoples of all nations have instinctively hunted in the forests and fields for those indications of life and beauty which give them the assurance that there will be green leaves and flowers again next spring. The evergreen Christmas tree is a tradition which has become very deep rooted. Any other bit of plant life that shows some color is eagerly gathered and used for decorations

around homes during this holiday season. Holly, Bittersweet, Mistletoe and Pine Cones have become standard materials. Each community has adapted the things most easily obtained for their use.

In the Rocky Mountain area we have very largely retained the customs and habits of the older populated sections of the East and have thought little of using the materials that we have growing wild here. Let us hope that the use of our native materials may never become so great that there is danger of destroying the beauty of our mountains, but we might well learn to appreciate the things that we have and make a habit of going each holiday season to see these things where they grow.



Many years our kinnikinnick still retains its bright red berries until Christmas time and even if these are not present the evergreen leaves are very beautiful and Christmasy. The Oregon Grape is very plentiful over the mountains and foothills. Its leaves are very similar to holly and may be quite red where found in the sun and fresh green in the shade. Many of the native junipers or cedars have attractive contrasting berries as well as fresh green or silvery foliage. The cones of Ponderosa pine nestling in a background of the long green needles are very ornamental. The Douglasfir has become our "Christmas tree" and it is one of our native greens which is in danger of being over used. When there are cones on the twigs of this tree they make a fine color contrast with the green foliage.

There are few other native plants which are commonly seen at Christmas time but occasionally the Pipsissewa leaves will be seen sticking up through the snow or on the western slope there may be quantities of the evergreen pachystima.

Stalks of grasses, stems of seeds from wildflowers and bare, wind-polished twigs may be gathered to make beautiful indoor decorations.





The Christmas Tree

A reminder, in winter, of the annual renewal of plant growth to come next spring. When carelessly cut it can mean the ruin of our beautiful forests.

ERNE H. SHUBERT

CHRISTMAS is almost here, that delightful time of the year when our thoughts are turned toward friends and festivity, toward gift giving and gayety, and especially toward that most beautiful symbol of the season, the Christmas Tree. How it shines in our mind's eye, the sparkling center of our family gatherings, and the gay adornment of our streets and public places, as well. From its forest home it brings us the mystery of its dark branches, the incense of its spicy needles, the aspiration in its spire-like form, and above all, the expression of steadfast courage and hope in its ever-green mantle.

Some few of us are lucky enough to be the happy owners of a bit of land where Christmas trees grow, or we may have the good fortune to 'know a man' who owns such a plot, and then what fun it is to make the pilgrimage into the snowy forest to select and cut our very own tree and bring it home in triumph. But for most of us the choosing of a tree means making the rounds of the Christmas tree lots which spring up as if by magic about this time of year, gaily bedecked with boughs and wreaths and colored lights. There we examine all the trees, sniff their fragrance, visit with the proprietors, and finally select the one tree which suits us best. We may hardly be aware of this tree's background, of the forest from which it came, or of how it got to us. Was it, perhaps, cut from a stand of crowded young trees in such a way that the others were permitted a larger

space in which to continue growth? Or was it cut with all its neighboring trees, large and small, leaving a barren hillside to wash away behind it?

These questions, and others like them, seem far away from us in our snug towns and cities, but they are highly important to us just the same, as well as to our farm and forest neighbors who make a business of selling Christmas trees. To us, proper harvesting of the trees is important first and foremost from the standpoint of maintaining our watershed in good condition to hold the moisture from snow and rain. To do this the forest must have sufficient healthy young trees to replace the old ones as they drop out. And since Christmas trees are primarily young trees, they are the hope of the forest as well as of Santa Claus.

Another aspect of the Christmas tree harvest which concerns us quite directly is its effect on our hillsides, which become one of the greatest attractions for tourists in the Summer time. The very same hills from which our trees are taken in the Winter are the ones most often seen by tourists in the Summer. What is more discouraging to the vacationer than to spend his time among the rubble and rubbish covered hills where trees have been cut indiscriminately with no thought for the effect upon their surroundings? Or to return to his summer cabin, as one visitor did, only to find that the lovely trees which were its chief beauty, have been brutally mutilated by having their tops

cut out for Christmas trees during deep snow? As the proud co-owners of a vacationer's paradise we are all affected by such unhappy situations.

To the folk who make a business of cutting and selling trees and greens at Christmas time, proper cutting is of even more immediate importance. For by indiscriminate, thoughtless cutting, they destroy the very source

STANDARDS FOR PROPER CHRISTMAS TREE CUTTING

Issued by Colorado's State Forester

1. Cut from over-crowded stands which need thinning.
2. Fell the entire tree, ground space will be left for young healthy fast growing trees. There is a market for side branches; trunks can be used for mine props, fence posts, corral poles and fire wood. In some instances, trees may be large enough for saw logs.
3. Brush should be lopped and scattered so as to lie flat on the ground. This will reduce fire hazard and improve the appearance of the ground from which trees are cut.
4. Stumps should be left 8" in height or less on the high ground side.
5. Topping of trees any size will not be considered good forestry practice. It ruins the tree for either good Christmas tree production or for growing into a lumber size tree.
6. Leave a stand of healthy trees, spaced about 8 to 10 feet apart—500 to 700 per acre.
7. When cutting boughs from standing trees it is not healthy for the tree if the boughs are removed to a greater height than $\frac{1}{3}$ of the height of the tree, starting from the ground level. To cut higher may result in the death of the tree, resulting in a total loss to the owner.
8. Estimate as closely as possible your demand for the season. Trees cut and not sold are an *unwarranted waste* of a thing of beauty as well as a reduction in the percentage of overall profit to the land owner, cutter or dealer.
9. Be sure you are on the right land before you start cutting and make doubly sure you do not cut over the line on someone else's property.

of this nice income; while by careful maintenance of the more accessible forest areas, they assure themselves of an easily available income crop for years to come.

If they, and we, should be tempted to think, 'Oh, well, Christmas trees are such a small item that they couldn't affect our forest much, one way or another', perhaps we'd all be surprised to know that last year alone the U. S. Forest Service cut 22,109 trees from the national forests of Colorado, while our State Forester's office supervised the cutting of 103,170 trees, mostly from private lands, in addition to the vast numbers of trees which were cut without any supervision at all. And we should not forget that our beautiful Douglas-firs are becoming more and more popular as Christmas greens in other parts of the country, opening an even larger market for the future.

In Colorado, we are unfortunate, so far, in having no state control of our Christmas tree cutting, to encourage the careful harvesters and to protect us all from those who through ignorance or for other reasons fail to see the benefits to be derived from well-planned cutting. However, we do have city ordinances in many of our cities and towns, and most of these ordinances require that the trees offered for sale bear a certification tag indicating that they have been cut under the supervision of either the State or Federal Forestry Services, and in compliance with the cutting regulations of these organizations. When we buy trees bearing these tags we are getting the results of at least three inspections, the first taking place before ever a tree is cut in order to see if the area is ready for cutting, the second, during the cutting operation to be sure that good harvesting practices are being followed, and the third, after the trees are cut and

stacked before the tags are issued. We can be assured that these trees have left our forest land in a condition as good as, or better than it was when they grew upon it. And as more and more of us buy only tagged trees we make it possible to check the wasteful cutting of many trees which are never used and which make up the sad funereal bonfires so often seen late on Christmas Eve.

Of the great numbers of untagged trees which we find in those lots which cluster at the city limits, and occasionally, alas, even among the

tagged trees in our city lots, we have no way of discovering how they were harvested. Nor do we know the conditions under which the trees coming to us with out-of-state tags were cut. But we do know that the trees we get with the State or Federal certification tags are the best trees, and as we carry them gaily home, and twine them with tinsel and gleaming lights, the baubles seem to shine more brightly, the lights to twinkle more merrily, and with the spicy fragrance of the Christmas Tree we breathe the thanks of the grateful forest.



INSIST on tagged Christmas trees.

BUY only from Christmas Tree Dealers Association members.

LOOK for the place where the Christmas Tree Dealers Association symbol is displayed.

Help Protect Your Forests

Credit for the Green Thumb

While in the East recently, several noted horticulturists told me that they considered the Green Thumb the best regional garden magazine in the United States. If that be so we would like to pass on the credit to the many who have contributed to its development—to the many members who have written good stories of our local horticultural problems, to those who have furnished pictures and to the commercial firms who have gone beyond the line of duty to print it, especially the Ehret Engraving Co. and the Peerless Printing Co. Along with the work and problems of being an editor are the joys of working with such fine people.

GEORGE W. KELLY.

From The Desert

"I have long advocated the abolishing of all chambers of commerce—and in their places the forming of groups which will be interested primarily in the promotion of cultural activities. The difference is that most chambers of commerce are concerned mainly with quantity—they want more people and more smokestacks and more money. I am sure that some day, when human minds become more mature, we will all realize that quality is a more significant word than quantity—that more people and more factories are less important than the creating of a community environment which brings out only the best in the humans who already dwell there." Randall Henderson, in Desert Magazine.



The "impossible" magnolia that bloomed in Denver last spring.

THE more experts I hear, the more confused I get. First I am told to stick by the "dependables", such as Bridal Wreath, Honeylocust, Ninebark, and Shasta daisies. Then comes a man from Hackensack, New Jersey and says that rhododendrons ought to grow well in Denver, because Denver is located in Zone IV and that is just right for them. But that magnolias belong farther south and it would be foolish to try them here.

Next, I look around. I find half a dozen magnolias in Denver, in full bloom, but not a single rhododendron.

One person tells me to try Chinese Flowering Dogwood and Tuberous Begonia; but my nurseryman warns me I'll just be throwing my money

Plants You Can Grow—Or Can You?

M. WALTER PESMAN

away,—I won't be able to make them grow.

Some experts seem to have short memories. Aster Burbank Charming was praised up to me a few years ago as the acme in pink Michaelmas Daisies; to-day I can't buy it anywhere. *Artemisia lactiflora* was the "last thing in background perennials."—now it's "too weedy to have around." *Perovskia*, where art thou? And what became of the much-touted *Pachysandra*—"the best groundcover ever,"—and who is now enthusiastic about cactus dahlias? Please, experts, get together!

* * * *

The above complaint is far from uncommon. And it has considerable justification.

Now let's try to be realistic and see where we stand.



First let's look into this "zone-business". Many a standard book on Horticulture flaunts a map of the United States, neatly divided up into ten zones, indicating hardiness. Zone I is restricted to Canada; zone II dips into North Dakota and Minnesota, where the mercury drops clear out of sight on some cold winter days.

On the other extreme is Zone X, found in southern Florida and southwestern California, where frost is an unknown quantity,—at least unknown in tourists bureaus. Zones are based on average annual minimum winter temperatures for the years 1895 to 1935.

So what? Does it mean that Zone IV, which stretches from northwest Montana, through Idaho into Utah and Colorado, then takes in most of Kansas and Nebraska, some of Illinois and Indiana, and all of Michigan, reappearing in New York and Vermont,—does it mean that the same plants will be hardy in all these regions?

Far from it. Rhododendrons give the lie to any of such zoning maps; they may be much at home in New York, and Illinois, but may refuse to consider Utah and Colorado for their habitation.

No map based on the date of killing frosts, on average temperature, on length of growing season,—will be a safe guide to follow here.

Temperature is only one of the many factors that determine growth of plants. Others, of equally great importance are acidity of soil, texture of soil, winter climate, wind, snow protection, intensity of sunshine, altitude, time and distribution of rainfall.

Colorado is unique in that it combines factors of the most diverse regions; it is Minnesota, Illinois, California and Massachusetts combined. And it is for that reason that no zone map

will tell us what we can grow or not grow.

Is there then no guide to follow in what to grow? Nothing but hit-and-miss experimentation? Should we try everything and hold on to what is successful in actual experience only? That would be a long and tedious process.

Well, it is not quite as hit-and-miss a situation. If you get the experts together, they'll come to a number of guiding factors. Here are some of them.

1. Low winter temperature in itself is not much of an indicator. A sudden drop for a day or two may do little damage if the ground is covered with snow. Frost in the east is often dangerous on account of too much ground moisture, in Colorado it is more apt to cause damage if the ground is too dry.

2. An important deciding factor in success or failure is the acidity of our soil, the pH as chemists call it. Practically all members of the Heath family, for instance, require an acid soil, less than 5 pH. And our soils are generally alkaline or at most neutral. No matter then, if Sourwood belongs in Zone IV, the fact that it requires acid soil, and belongs to the Heath family, makes me think that it would have a slim chance of success in Colorado. Flowering Dogwood, Rhododendron, Blueberries, Cranberries, Azaleas, Mountain Laurel, Holly—all of these crave an acid soil, and for that reason, are difficult to grow in Colorado and other states with soils of a high pH.

3. In making up your mind about the probable success of a new plant here, find out whether it can stand a dry atmosphere, all through the year. By actual test we have found that eight or ten times as much moisture is given off by plants here as in damp

climates. Wind and hot sun, of course, make it all the more difficult.

4. Altitude as such does not seem to be too important a factor; neither is intensity of sunlight generally a handicap, (after all, a plant can be located so as to have shade much of the time). However, the things that go with altitude may be decisive; continued snow cover in winter, short season, late and early frosts.

* * * *

—But after all this talk, I still don't know what plants to choose for my garden. Shall I use for instance the list given out by Dr. Ries of Ohio during his talk, as a guide, and order only those plants? Or shall I follow the advice of my nurseryman and order only what he has been growing for the last twenty years?

As so often, the best line of action lies in the middle. Certainly, Dr. Ries' list was not meant as a complete guide; only as an indication of what to use as,—what shall we say?—a sort of dessert? Better yet, it should be used as a challenge for garden skill. If you can make a success of Christmas rose and of *Anemone hupehensis*,—if you can make your neighbor envious with your magnolias and *Cornus kousa*,—all glory to you.

On the other hand, if you want a

permanent, happy-looking shrub border, don't pass by the well-tryed standbys, such as spireas, ninebarks, mockoranges, lilacs, and hawthorns. In other words, let the backbone of any planting be trees, shrubs and flowering plants that have had a long record of dependability. They are the "main course."

Then, for the fun of it,—and for the advance of horticulture,—keep trying unusual things, plants that "are not supposed to do well".

Here is where out-of-state experts can be of great help: to indicate what might have good possibilities. And here is where national magazines may be helpful. To whet one's curiosity!

The safest place to try out such experimental novelties is on the east side of the house, sometimes the north side is indicated. A northeast "in-corner" may be ideal.

Exotic plants from regions with similiar climate as ours have the best chances of course: Siberia, Turkestan, Mongolia, Chile, Korea. Try lime-lovers rather than peat-lovers, succulents rather than ferns. Let's find out just how green our thumb is!!

This month's two-color issue was made possible by some of our loyal advertisers. They deserve your support.

Snowgarland Spirea is one of the dependables.



HEMEROCALLIS NEWS

By LEMOINE J. BECHTOLD

THE Hemerocallis "bug" seems not to have invaded Colorado gardens as yet, but surely as Spring follows Winter, a great wave of enthusiasm and Day-lily enlightenment will soon envelop us. Already elsewhere it has done just this. The importance of this progressive plant has grown to such an extent that a national Hemerocallis Society has been formed, the membership of which is represented in every State of our Nation.

Last June a Hemerocallis show was held at Bartlesville, Oklahoma. More than eight hundred visitors from seventeen States attended and enjoyed the hundreds of varieties of Day-lilies, blooming at their peak in display gardens.

Eager, patient and enthusiastic hybridists are working widespread to create new colors, new shapes, great substance and sizes, better blooming and growing habits—and truly you have only to see the new huge twisted orange types, the velvety deep reds, those creamy pinks with ruffled edges, to feel the urge to grow them in your own garden. New and improved patterns and types appear yearly. Bicolors with petals of one color and sepals of another color, some with deep-colored throats and blended tips. Some petals may be twisted, some crinkled and others recurved.

It is generally thought that the Day-lily will become as popular as the beloved Iris, since they follow in bloom just as the Iris leaves us and varieties continue to bloom throughout the Summer. Many improved varieties withstand the hot all-day July

and August sunshine. There are varieties also that bloom early and with the Iris, but the later ones are most appreciated.

There is such a wide-spread variation in Day-lillies that one soon finds his or her favorites. Just one plant has oftentimes been the incentive for a large collection of them in gardens.

At the Bartlesville show Colonial Dame, Aurora (pink), Goliath, Hesperus, Purple Prince, Lillian Russell, and Tejas were among those considered tops. The writer personally admires those deep Gloxinia reds like Purple Finch, Honey Redhead, Red Bird, Royal Ruby, and Minnie.

Because the Hemerocallis is so faithful to bloom, so easy to grow, so sturdy to withstand cold winters and drought of summers, so disease and pest free, I recommend them most heartily.



If enough people in Denver are interested in Hemerocallis it would be nice to arrange a meeting where we could learn more about this fine flower, exchange experiences, exchange varieties of stock, acquaint one another with what is going on in this interesting field. Feel free to call me at AComa 0541 or CHerry 6373.



God has lent us the earth for our life. It is a great entail. It belongs as much to those who are to come after us as to us, and we have no right by anything we do or neglect, to involve them in any unnecessary penalties, or to deprive them of the benefits which was in our power to bequeath.

RUSKIN.

YOUR TREES ARE VALUABLE

They Should Have Expert Care

By GEORGE M. FISHER

SHADE trees are a priceless heritage to all citizens of Colorado. In their lives, as well as with all Americans, shade trees are becoming increasingly important. There is hardly a man, woman or child who does not receive some benefit from tree shade and protection during the heat of summer and the cold sweeping winds of winter.

Because there is an increased appreciation of shade trees in America, the profession of arboriculture is rapidly expanding. The American arborist, or tree expert, has been around the country almost as long as the forester, first as the itinerant tree surgeon, but of late with more professional standing. Largely instrumental in this development, have been the organizations, The National Shade Tree Conference and the National Arborist's Association. The reason that the type of work being performed by these men who make their living with care and maintenance of shade trees has evolved from trade status to that of a profession, probably now even out-numbering the foresters in actual practice, is because scientific knowledge is a requisite when dealing with any living things.

As the present conception of tree preservation is of comparatively recent origin, and the term arborist, as used by the professional tree worker, is rather new to the public, there appears to be a lack of understanding of the operations and services of the tree expert. This leaves the average home owner open to the prey of the dishonest or ignorant operator, as the

field of arboriculture presents many opportunities for unscrupulous tactics.

It is no wonder then, that the transient tree doctor has come into somewhat bad repute with the public. In Colorado, as in many other states, many men, so-called tree doctors and spray experts, appear from time to time armed with saws, axes, small sprayers and worn-out equipment. These men often promote undue overselling, or cause the client to buy more services at one particular time than he might need, an imposition which an arborist operating in good faith would consider unethical. And chances are that he carries no protective or property liability insurance of any kind, and if he cuts down a big tree for you and it accidentally topples over a house or automobile, you are finally liable for the damages.

These itinerant workers spray trees they may not even recognize, with "secret formulas" or chemical solutions about which they know less. Quite naturally, the property owner's knowledge of trees and spray materials is somewhat deficient, and he knows little about the residual effects upon the trees.

An untrained tree-doctor's operations are unfair to both the trees and their owners. There are certainly many sad examples of improperly pruned shade trees along Colorado's streets and roadways to substantiate this statement. Unfortunately, these operators are generally just passing through the territory with no intentions of ever coming back. They have no financial backing and are not try-

ing to build up a permanent business reputation with assurance of future business.

Other businesses and professions have laws which incorporate regulations protecting both the public and the legitimate operators. Some progress has already been made in the field of commercial tree work to protect the property owner. A broad pattern of tree expert laws has already been established in six states, and others are now considering legislation to regulate the standards of shade tree care.

Many municipalities throughout the country have passed ordinances which at least serve to restrict or reduce unscrupulous practices and protect the property owner against itinerants to some extent. Better Business Bureaus serve to handle the problem effectively in some cities by taking steps through the local bureaus and the press. This is more feasibly accomplished in cities that have city forestry or shade tree policies, where parking and street trees are administered by the city.

In some states the tree expert must pass an examination before he can even solicit tree work. This serves at least to weed out the fellow who can only use an axe and saw and can climb trees but who knows little else, and to find out if a man is competent to diagnose tree ailments and prescribe for their treatment. In other states a license is required, the issuance of which is based upon a satisfactory examination before a state board to determine the technical qualifications of the applicant.

Due to engaging in a highly specialized profession, it is almost impossible for a practicing city forester to operate, or call himself a professional forester without a college degree in forestry or an equivalent Society of American Foresters professional rat-

ing, so the public is well protected in this relation.

Honest, expert shade tree service, based on professional techniques and established scientific facts, is generally available to the Colorado property owner, through the services of resident arborists, practicing city foresters and established local nurseries having landscape maintenance departments. It is our duty to patronize them and thus help them to expand their legitimate services available to our communities.

Every town of 10,000 or more populations should be able to support the services of a tree expert, and smaller communities within the zone of his headquarters could be served by him. Some operators are now successfully established in communities in Colorado, which shows that it can be done. On the streets of any town in Colorado they will find plenty of material to work on.

It is well also to remember that the art of arboriculture is best practiced by the same local expert, working in the same particular area for some time, and has become thoroughly familiar with the numerous local ecological factors involved. Let us encourage the high-class technician in this field to come into our communities and establish himself as a much-needed public servant.

It should prove profitable for every property owner to make himself familiar with the specialized service available from a practicing tree expert, in order that he will know what is being performed on his trees before he lets a tree worker have the run of the place. A public educated in proper arboricultural services is less likely to fall a prey to fraudulent practices and can better determine what is necessary for their trees.

A Garden With **Year 'round Interest**

THE pictures on this page are from the garden of Mrs. John G. Kerr at 1900 E. 7th Ave., Denver. They show how a small area can be so skillfully designed that it will have a great deal of interest at all seasons of the year. In spring and summer there are flowers and green foliage to attract the eye and in winter the beauty of lines and masses is evident even when covered with snow. The center picture shows the view of the garden looking west. The statuary forms a focal point which is surrounded with the rose garden and emphasized by the formal radiating walks. This photo by Louise Pope.

The picture at the left shows the view looking in the other direction. This gives an idea of the small size of the space in garden yet how satisfying it has been made by completely screening out surrounding distractions. The picture at the right shows the view from the terrace adjoining the living room. The wall fountain on this axis adds much to the view. These two photos by M. Walter Pesman.





Man and Nature Combine **To Create Beauty**

PUT your finger on the little statuette and you kill the striking effect. See what happens in the picture below if you take out the wall fountain and the table: something essential is lost.

Most of the finest garden pictures result from the combination of man-made beauty and natural beauty. They seem to complement each other somehow. Statuary and formal pools, by themselves, are “dead”; shrubbery and flowers without the note of man’s help change a garden into a piece of wildwood—beautiful and soothing perhaps, but not as “liveable” as we like a garden to be.

Even a seat or a bird bath may provide this intimacy; they show that the garden is a place that is often visited, by man, and his friends, the birds.

These man-made additions do not need to be expensive, in fact, they are generally most effective when least ostentatious. A walk of warm sandstone may give this note, a wall or fence around the garden helps to make us feel the garden is something intimate.







Gardens Should Be Planned For Interest The Whole Year Through

MASSES of petunias and zinnias may make a garden attractive for a few weeks in summer, but it takes careful planning of line and mass to make a garden interesting twelve months of the year. We should have the spring attraction of opening leaves, the summer display of flowers and the flaming colors of fall, but we also need the green of evergreens and the beauty of hedge, wall and shrubbery masses to make a garden a thing of continuous beauty.

The picture on the opposite page shows one of the entrances to the John Evans home. Here steps, curving wall and balustrade design along with the evergreens give a beautiful effect at any season of the year.

The picture above is of the new home of D. D. Sturgeon at 250 S. Clermont. The careful planning of lines in the stairway and walls, the ornamental iron work and the use of appropriate evergreens all help to make this entrance view inviting at



any season and any kind of weather.

The view above illustrates that even small homes may employ the same basic principles to make their grounds of year 'round interest. This home at 245 Eudora has used the flagstone wall, the ornamental ironwork and evergreens to keep the place interesting after the flowers shown in this picture are faded and gone.

The two pictures below show how clipped forms of plants may add interest to grounds the whole year. Shown at the left is the double row of clipped plum trees at the Greek Theatre in the Civic Center, and the picture at right shows the interesting series of clipped juniper hedges on the grounds of Mrs. Helen K. Amter at 450 Race.



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sun.

Willows by the creek stand etched in
gold,

And lavender-grey low growing
shrubs add soothing tones.

Cottonwoods raise branches grey as
weathered bones

That shine with an eerie light when
drenched with winter sun.

Shall I be thankful for the beauty
there,

Of for the power to see and feel this
loveliness?

Some see it every day yet sense it
not—

This miracle they take for granted.







TIMBERLINE THRILLS

MYRTLE ROSS DAVIS

The container for this arrangement is a weathered hollow stump which was found at timberline. The slightly charred area shows that it has been through a forest fire. The soft inner wood has crumbled away leaving an ideal container for evergreen boughs and other material which does not require water to keep it fresh.

The soft grays and browns, the

beautiful swirls and the weathered satiny texture of the wood are very lovely. When it is filled with pine boughs and cones or with Juniper branches which are covered with blue berries with an accent of red rose hips and Oregon grape leaves, it makes a striking decoration for a mantel in a room which has knotty pine paneling.

Christmas Decorations

From The Garden

CLAIRE NORTON

AND all through the house—there is last minute decorating to do. Then turn to your garden for inspiration. Some of those evergreens may really need pruning. Add to these colorful berries, cones, bright winter twigs, a little imagination and you can create festive decorations to delight family and guests.

If you have grown tired of hanging conventional round wreaths on the door for the holiday season, try fastening to the knocker a graceful bough of Douglasfir or of pine, finish off with a large bow of red from which hang three or five tinkling bells on narrow red ribbons. The merry jingle announcing your guests will thrill both them and you. Or use a cluster of cone-laden pine branches, or even just two branches run through the knocker with bright rose hips tucked in. Or a string of old-fashioned harness bells with evergreen tips fastened in here and there as a backing.

Still another ornamental motif for the front door is a bow knot of fir branches and blown glass balls in brightest colors. The fans of arbovitae can be similarly used alone or combined with the fir. And a full branch of fir or spruce or pine decorated with a string of colored Christmas tree lights is good for either door or window.

A single and lovely wreath for a focal point in a room is one made of hawthorne or mountain ash fruits, the fruits accented here and there by leaves of true holly or the holly grape. And if you want to follow an

old, old custom, hang above your mantle a wreath of boxwood, evergreen bittersweet or cedar, having a perfect circle in the center to symbolize Eternity, the outside triangular to symbolize the Trinity. Before and slightly below this place your Yule candle, surrounding its base with pine cones in natural brown and a spray of pine or fir. For the wall in the foyer, tie three boughs of cedar, hemlock or fir with red ribbon, a bow to each and a festoon of the ribbon connecting all three, then place on the wall in the best way to fill the space attractively.

The garden offers endless variety for decorating the holiday dinner table. If your orchard yielded well this year, polish your reddest apples, heap on a silver or pewter plate, tuck in cedar or juniper tips and surround with silvery spruce branches as a footing for the candles. A simple mound of cedar branches, cones from spruce or pine, rose hips or red dogwood twigs, and three white candles offer possibilities for several clever arrangements. Or if you plan a centerpiece of roses from your greenhouse, tie them into the holiday season by tucking in a branch of pine or cedar. A low mound of fir and holly, topped with the largest ponderosa pine cone you can find will make a simple but lovely centerpiece.

With all the charm of a frosty winter morning is this table decoration: Prune two or three shrub branches with a nice swing or rhythm. Dip in laundry starch and while wet sprinkle with artificial snow.

Attach blown glass balls of various sizes here and there. Fill an oblong or square flat-bottomed flower holder with sand. Arrange the branches near one end, tuck in twigs of fir or yew about their base and complete with a choice figurine of a deer, a Santa or possibly a flat little ceramic bird.

Every woman guest at your Christmas dinner table will cherish a neat Christmasy corsage that she can pin on the fur of her coat when she leaves. At our house these little corsages have doubled as place markers for years. They are so simple to make. For each, assemble two berry-laden tips of red cedar, laid flat and pointed. Over the

base of these lay bright berries of kinnikinnic or holly or a tiny sprig of bittersweet. Hold firmly in the hand and wire before tying with a bow of red ribbon.

Ideas for other delightful sorts of boutonnieres which can serve as place cards and be worn after the dinner, and in fact, throughout the holiday season, will occur to the decorator with a garden. For these, evergreen cuttings in variety, colorful berries and red or silver ribbons are used, the material and size of the finished boutonniere depending upon the maker. An attached card bears the name of the guest.



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IT'S SMART TO BE THRIFTY

WHAT do you see in fallen leaves? Material for a bon-fire? A nuisance to be disposed of with as little effort as possible? Or can you see, contained within the ripened plant cells of which they are composed, hidden dollars, chemicals necessary for plant growth, elements vital to soil fertility? All these values, and more, are there.

Leaves, when dry, are about twice as rich per pound in plant food as barnyard manure, the standby of veteran gardeners. It has been calculated that a ton of leaves may yield as much as 32 pounds of nitrogen, 5 pounds of phosphorus, 39 pounds of potash and 46 pounds of calcium. Through the process known as *composting*, these elements, essential to plant growth, can be reclaimed and returned to the soil. In addition to these nutrients, composted leaves also contain enough coarse humus and organic matter to give body to sandy soil, or to render tight clays more friable. Compost can be used as a top-dressing for lawns, to strengthen weak spots in the garden, to work in around the roots of shrubs and trees, and for many other purposes.

In making the compost it is best to use a pit, preferably one made of concrete, to prevent the leaching away of liquids that are rich in plant foods. Lacking the space or the inclination to make a pit, leaves may be composted in a little used corner of the yard or in any other convenient location. The compost pile can be completed in a single day and contain no organic matter other than leaves, or it may be built up throughout the summer and fall seasons and contain lawn clippings, fruit and vegetable refuse, weeds that have been pulled or

cut before seed maturity, manures and other similar materials.

Usually the compost pile is made oblong in shape, not over six feet in width, as long as desired and conveniently high — generally not more than four or five feet for ease in handling. The base course should consist of a layer of four or five inches thick of chopped cornstalks, sods or other coarse material. This should be covered with two or three inches of stable manure if it is advisable. The compost pile may then be completed by adding alternately a six-inch layer of leaves and a two-inch layer of loamy soil until the desired height is reached. The top should be left concave to collect, rather than shed, moisture. The leaves should be thoroughly moistened when piled, and if the weather remains dry the compost pile should be wet down once a week with the hose. A mixture composed of three parts ammonium sulfate, one part superphosphate and two parts finely ground limestone added to the compost pile as it is built, at the rate of six pounds of the mixture to each hundred pounds of leaves, hastens decomposition and adds to the plant food value.

If the compost pile is built this fall, it should be turned over with a spade or fork and reiled in the same shape once or twice next summer. This admits air to the pile and hastens decay of the leaves. The compost pile so treated should be ready for use next fall.

From "The Shade Tree Digest"
as presented by

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It is important to be sure that the soil around all roots is wet when it freezes up.

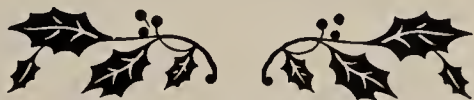


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As the old year wanes and little 1950 approaches over the horizon we deeply appreciate the friendships that have meant so much to us in 1949. With deep sincerity we say "THANK YOU EVERYONE".

To the Editor of "THE GREEN THUMB" and his fine staff of helpers, to our fellow nurserymen and to all members of "Denver Treemen's Association" and to all readers of "THE GREEN THUMB", we wish



A Merry Christmas and
A Happy New Year

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DECEMBER GARDENING

WINTER protection is the keynote of garden work in December. When the cause of most of our winterkill is understood to be our hot winter sun and dry air, it is then apparent that our chief concerns should be to see that the ground around all plants is sufficiently wet before it freezes up and that tender barked trees, tender evergreens or borderline shrubs have some shading from the severe southwest sun.

Each rose grower has individual methods of protecting his tender roses but the method of hilling soil up around them to a distance of six inches or so seems to give rather universal satisfaction. This should be done between the time that the leaves fall and the ground freezes (which in some seasons is a difficult period to determine).

Shrubs and trees which have low hanging limbs likely to interfere with walks when heavily laden with snow should be taken care of now. This may prevent some breakage to the tree and save someone's temper on a crisp snowy morning. Tall, slim junipers should be checked to see if they might be braced back to a building or another tree to prevent their being bowed down or broken by heavy snow.

One of the most important garden operations of the season may be done while plants are dormant and weather is still fairly warm. This is the dormant spray for the control of scale insects and control of certain other spiders, galls or aphids. Lime-sulphur or miscible oil is commonly used and is a technical job requiring careful mixture and application by adequate equipment if the trees are at all large.

Now that the active growing season is over landscape men are available to do the extensive jobs of removing crowded or dead trees and to do the thorough jobs of trimming and caring for shade trees. It is recommended that maples, birch and walnut trees be not trimmed until they are in leaf again as they are inclined to "bleed" rather badly when trimmed during their dormant period.

When the plants outside in the garden are dormant our attention is directed to the plants that we are able to bring indoors. At the holiday season these bright spots of green and color are especially appreciated. Success with these plants depends very largely on careful attention to the proper soil to pot them in, to careful watering and regulation of the humidity in the air. If more than the succulants and hardiest plants are attempted it is well to provide additional humidity by having a teakettle on a stove register or electric plate a few hours of the day at least.

Garden construction work can now be done without interference with growing plants. Paint the fence, level up the stepping stones, repair the gate or build that new pool that you have wanted for years. Porch boxes may be repaired and trellises replaced. Soil improvement may be done by spading in humus if the ground has not yet frozen up.

Last year as you worked with your plants in the garden did you not often wish that you knew more about the many things concerned with horticulture? Now is the time to look up books and bulletins on the new insecticides, the latest advances in fertilizers, the new varieties of your favorite plant and the principles of landscape design.

What Does YOUR Membership in
The Colorado Forestry & Horticulture Association
Mean?

To the ASSOCIATION:

It means your support of a worthy cause, for the Association is working for:
the preservation of the natural beauty of Colorado; by
the protection of her trees, wildflowers, other plants and wild life;
the proper maintenance and additional planting of gardens, flowers, shrubs, and
trees in all communities;
the establishment of a State Botanical Garden or an Arboretum; roadside parks, state
parks and botanical reserves throughout the State;
the publication of a magazine devoted to correct information regarding forestry and
horticultural practices; plants best suited to the climate; coordination of the
knowledge of foresters, horticulturists and gardeners for their mutual benefit;
a connecting medium between the association and the member.

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It means an association with hundreds of other green-thumbed lovers of plant life
in the garden, in the city park, on the farm, throughout the plains and moun-
tains, or wherever they may be found;
a subscription to the official bulletin, THE GREEN THUMB, published monthly,
bringing you the latest information on gardening practices in Colorado, and
reports of all activities of the Association;
the use of HORTICULTURE HOUSE, rebuilt and charmingly furnished by its
sponsors, for members or committee meetings, classes, lectures and displays;
the use of its Library and Herbarium which contains an outstanding collection of
books, current magazines, plates, pictures and specimens, covering every phase
of plant life;
the advice and counsel of a trained horticulturist to help solve your horticultural
problems.

Regular Memberships run thru the calendar year—January 1 - December 31:
those received after January 1 being retroactive to that date.

After July 1 memberships may be taken out for the balance of the year at half price.

Requests for further information should be addressed to the Association at 1355
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